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THE PRESENT STATUS OF OVARIAN THERAPY *

EMIL NOVAK, M.D.

BALTIMORE

In a paper read before the American Association for the Study of Internal Secretions in 1922, I[1] presented an appraisal of ovarian therapy which, from the evidence then available, was of necessity a rather pessimistic one. Since then there has been a remarkable advance in our knowledge of the physiology of the sex cycle. My purpose in the present communication is to review the general problem in the light of our new knowledge, and to consider how much, if anything, this increased knowledge of the physiology of reproduction has added to the rationale and the results of ovarian therapy.

It is along the lines of physiology that the most important advances in gynecology are being made. Contributions are being made so rapidly that no present point of view should be urged too dogmatically or too inflexibly. The subject is still too liquid to justify this, although each year new facts are being crystallized out. Clinical workers must be guided largely by the results of those who are studying the problem in laboratories. The latter are still in disagreement over a great many points. It would be unfortunate if the eager clinician should apply half-proved theories or speculative hypotheses to his own problems. This is just what we have been doing for the past thirty years, and this is why there has been so much discouragement with the whole subject of ovarian therapy.

A mere review of the now huge literature, within the limits of a reasonably short paper, would of necessity be sketchy, inconclusive and probably uninteresting. I have therefore thought that a rather general appraisal, based on a reasonable familiarity with the literature of both clinical and laboratory investigations, and a fairly extensive personal experience with ovarian therapy, might be more worth while. The views here expressed, therefore, represent merely a personal reaction to the whole subject as it presents itself today.

OVARIAN PREPARATIONS AVAILABLE, AND THE METHOD OF EMPLOYMENT

Ovarian Preparations for Oral Administration.—These can be dismissed rather briefly, because they are familiar to every one, and because I can add little new to what was said concerning this subject in my previous review. They are made from the entire ovary, or from the corpora lutea alone, or from the "ovarian residue"; i. e., that portion of the ovary remaining after removal of all corpus luteum tissue. The first two types are used much more extensively than the third. All of them are available in the form of tablets, capsules or powders. The majority of manufacturers, for the sake of securing smoother preparations, include in the process of manufacture some form of "degreasing," which removes fatty principles which, on the basis of laboratory investigations, are considered to be of much importance, as they are in some way bound up with the active principle of the ovary. There is no standardization of these preparations, nor is there likely to be in their present form, because of the fact that laboratory tests show them to be without any demonstrable biologic action. They do not, for example, possess any such estrus-producing effect in spayed laboratory animals as is shown by the follicle hormone.

"Ovarian residue" was suggested by Graves[17] in 1919 on grounds which were anything but convincing, because there was certainly no evidence at that time to indicate that the interstitial elements of the ovary are of any physiologic importance in the human being. Nor is there any such evidence now, although, in the light of the newer work on the follicle hormone, it is true that "ovarian residue" may contain an incidental, though always small and uncertain, amount of follicle tissue. If one wants to administer follicle substance by mouth, however, there are far more potent and more precise ways of doing so than by means of ovarian residue. For example, placental tissue contains a large amount of follicle hormone, and the use of placental extracts would seem to have some scientific basis.

So far as I know, no American manufacturer has yet undertaken to supply a follicle hormone preparation suitable for administration by mouth, although one or two such preparations have been made available in Germany. Follicle substance is difficult enough to obtain in the far smaller amounts necessary for hypodermic administration, for it has been shown by Loewe, Lange and Faure[18] that, while the oral route is effective even in the production of estrus in castrated animals, at least twenty times the hypodermic dose is required.

With regard to the older forms of ovarian preparations mentioned, there is no worth-while evidence to indicate that they are of any particular value in the relief of objective symptoms of hypofunction of the ovary. It is true that scattered reports are to be found of occasional cases in which their employment in such

* From the Gynecological Department, Johns Hopkins University School of Medicine.

* Owing to lack of space, this article has been abbreviated in THE JOURNAL. The complete article will appear in the Transactions of the Section and in the author's reprints.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery, at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

1. Novak, Emil: An Appraisal of Ovarian Therapy, Endocrinology 6: 599 (Sept.) 1922.

17. Graves, W. P.: Ovarian Organotherapy, J. A. M. A. 69: 701 (Sept. 1) 1917.

18. Loewe, S.; Lange, F., and Faure, W.: Die Wirksamkeit des Zyklushormons bei peroraler Zuführung, Deutsche med. Wchnschr. 52: 310 (Feb. 19) 1926.

conditions as amenorrhea has been followed by menstruation. Such reports, however, are rarely of such a character as to impress one with their scientific significance. Without going into detail, I believe that there are few dispassionate observers who will maintain that the oral administration of these preparations for such indications is of any great value. This question will be discussed more fully in connection with the objective indications for ovarian therapy, as will the employment of such preparations in the subjective symptoms of the menopause, in which there is more room for an honest difference of opinion.

The most important reason for the general inefficacy of these preparations is, first of all, the fact that there is much reason to doubt whether they contain any appreciable amount of the active principle or principles of the ovary. Whether this is due to the fact that the ovarian tissue from which they are prepared contains very little stored-up secretion, or whether the secretion is destroyed by the method of manufacture, cannot be stated. Furthermore, there is much reason to believe that the active principle of the ovary is destroyed by the alimentary juices. Finally, if it is true, as many of us believe, that menstruation is the end-result of a series of orderly changes occurring in the endometrium as a result of the action of more than one ovarian secretion in proper amount and proper sequence, it is difficult to see how a tablet made from an animal ovary at one particular phase of its cycle—and that not always the same—can bring about normal menstruation in the woman to whom it is administered, especially as her sex cycle is so different from that of the animal.

In the manufacture of practically all the older forms of preparations for oral administration, no especial effort is made to select ovaries with reference to the phase of greatest functional activity of the follicle or corpus luteum, nor would this usually be feasible on a commercial basis. Hence, even from a theoretical point of view, there could not be any such thing as uniformity, and many of the ovaries utilized must be devoid of any active principle whatever.

Preparations for Hypodermic Administration.—Even before the discovery of the physiologic potency of the follicle hormone in laboratory animals, the poor results of oral ovarian therapy for most indications had suggested the hypodermic route of medication. But the hypodermic use of aqueous and lipoidal extracts, which soon became increasingly popular, gave little more reason for satisfaction. In addition, this method of administration presented certain obvious objections which made its application very limited, as will be emphasized later in this paper.

With the new knowledge of the potency of follicle hormone, a new hope has been kindled, and manufacturers are striving earnestly to produce preparations which will yield clinical results. Some of these preparations, formerly available only to the experimental investigator, are now at the disposal of the general profession, though still in limited amount and at rather high cost to the patient. Various names have been given to the supposed active principle by different laboratory workers and different manufacturers, such as folliculin, oestrin, oestrogen, feminin, menformon and thelykinin. All of these are for hypodermic use only, in spite of the fact that an increasing number of observations indicate that even by mouth the principle exerts an estrus-producing effect on spayed animals. Since the dosage required by mouth, however, is at least twenty, and, according to some, many more times as great as that necessary for hypodermic use, this consideration alone, in the present scarcity of the material, makes the latter route the preferable one.

It soon became apparent that the follicle fluid of animals would furnish a very insufficient supply of the active principle for clinical purposes, so that most of that now made is derived from the placenta, which is known to contain a considerable amount. The method of preparation is tedious, and no manufacturer is as yet producing the active substance in any large amount. New sources of supply are being sought. Fraenkel [19] has suggested that the urine of pregnant women, containing as it does an unusually large amount of the substance, might be utilized as a source of supply. One manufacturing house in this country has recently been able to prepare considerable amounts from the amniotic fluid of cattle.

The discussion of whether to use lipoidal or aqueous extracts illustrates the frequency with which our point of view concerning ovarian therapy must be changed. The importance of the lipoidal elements was formerly urged by practically all investigators, for the lipoids were considered to be in some way bound up with the active principles of the ovary. Recently, however, a number of competent investigators have shown that by proper methods of preparation active aqueous extracts may also be obtained. Practically all workers are still agreed that the lipoidal solutions, however, are to be preferred. They do not deteriorate so readily, and their slower absorbability makes their effect less evanescent.

Much less attention has been paid to the corpus luteum extracts, because of the emphasis that has been placed on the follicle substance as the all-important female sex hormone. This is unfortunate, because, as I have already emphasized, there is much evidence to indicate that the corpus luteum plays a part in the human cycle no less important than that of the follicle. More and more evidence is accumulating to support this view, and already a number of investigators have been able to prepare active corpus luteum extracts which produce effects quite different from, and in some respects antagonistic to, the follicle hormone.

The pioneer work of Loeb [7] had indicated that the corpus luteum secretion is capable of inhibiting ovulation. Papanicolaou,[12] in 1927, reported that, by injecting a corpus luteum extract in guinea-pigs, he could bring about a similar retardation of ovulation, and he emphasizes the fact that the extract is in many respects antagonistic in its effects to that of the follicle fluid. He has not yet, so far as I know, given details as to the preparation of this extract. Margaret Smith [13] likewise produced evidence, not dependent on the use of a corpus luteum extract, to indicate that there must be in the ovary another hormone besides that of the follicle. This hormone, which she feels must be that of the corpus luteum, is antagonistic to that of the follicle in many of its effects, the two constituting a balancing mechanism.

Hisaw,[20] in a recent preliminary communication, has attacked the problem from a new point of view. He found that the pelvic ligaments of the guinea-pig are relaxed by injections of corpus luteum extract, but only when the animal is under the influence or recovering from the influence, of the follicle hormone. He [21]

19. Fraenkel, L.: Ueber das weibliche Sexualhormone, Deutsche med. Wchnschr. **53**: 2107 (Dec. 9) 1927.
20. Hisaw: Tr. Am. Asso. Adv. Sc., 1927, to be published.
21. Hisaw: Personal communication to the author.

concludes that "in order to get certain biologic results the hormones of the follicle and the corpus luteum have to be given in proper sequence."

Another important contribution has been made recently by Weichert,[22] who, working with Hisaw's corpus luteum extract, produced a definite inhibition of ovulation. Furthermore, by injecting the hormone into rats for two days following estrus, then stimulating the uterine mucosa, and continuing the injections for four more days, he produced definite placentomas. Loeb had shown that these could occur only during the active phase of the corpus luteum. Weichert further states that "ovariectomized rats were treated with corpus luteum hormone in the same manner and no placentomata were formed. If, however, such rats were first brought into oestrum artificially by injections of the follicle hormone and then treated as above, placentomata were formed. Apparently the follicular hormone is necessary to put the uterus in a proper physiological condition before it will respond to the corpus luteum hormone."

This work, if confirmed by others, will bear out completely the view I have been urging for some years, that both follicle and corpus luteum hormones are of importance, and that the latter can exert its effect only when the field has been prepared, so to speak, by the follicle hormone.

The Changed Attitude of Some Manufacturers.—It may not be out of place to say a word as to the part played by the better manufacturing houses in the development of this problem. It has been the custom in years gone by for authors of "conservative" papers on organotherapeutic subjects to include more or less scathing denunciations of the evil rôle played by manufacturing houses, through their commercial exploitation of preparations based on unproved and perhaps absurd hypotheses. There are still, as we all know, many manufacturers who heartily deserve such censure. On the other hand, it is only fair to say that there are now a few houses which are making a sincere effort to cooperate with investigators in working out such problems as the one we have been discussing. While the primary motive of such concerns is, of course, a commercial one, they have apparently come to realize that in this day and generation, it would be poor business to exploit preparations which will soon be shown to be worthless. Much time and money is therefore often spent in laboratory investigations of a high standard of excellence, and much willingness is shown by manufacturers to cooperate with other laboratory workers and clinicians in an effort to get at the truth before marketing their wares.

INDICATIONS AND RESULTS

As complete removal of both ovaries invariably brings about cessation of the sex cycle, there can be little criticism of the general theory of ovarian therapy in conditions due to absence or deficiency of ovarian function. The question, however, which at once suggests itself is this: Has our knowledge of the physiology of the cycle and of the biochemistry of the ovary advanced sufficiently to enable us actually to place in the patient's circulation, in appropriate amount, the substance or substances that are secreted by the normally functioning ovary? This question has already been discussed, superficially at least, in the foregoing pages of this paper. It must be clear that, in spite of the great strides of the past few years, there is still much to learn on this subject. I do not, of course, mean to indicate that all efforts at therapy in the human subject should be withheld until our knowledge is more complete. This, indeed, would be a mistake, for, after all, the problem of the human sex cycle can in some of its aspects be studied best, and perhaps only, in the human subject, for the animal cycle differs from the human cycle in many respects. No harm is done the patient by the use of any of the extracts that have been employed.

The important consideration, it seems to me, is that such tentative efforts at a specific therapy should be carried on in the same scientific spirit which we exact from laboratory workers. It would perhaps be better, utopian as the suggestion may be, if the study of the applicability of the newer knowledge of ovarian physiology to the human being were for the time being left to the larger teaching clinics, where ample facilities exist for such a scientific study. For the present the whole problem is in an experimental stage, and premature application of our as yet unripe knowledge will carry in its trail the usual clutter of faulty clinical observations and poorly digested conclusions, so that the issue will be beclouded for years to come.

Among the clinical manifestations which may reasonably be ascribed to hypofunction of the ovary are the following:

1. Amenorrhea (absence of menstruation), hypomenorrhea (scanty menstruation), and oligomenorrhea (abnormally infrequent menstruation), delayed puberty, and premature menopause.

2. The vasomotor symptoms of the menopause (either natural or artificial).

3. Some cases of sterility (probably only a small proportion).

4. Possibly some cases of so-called primary dysmenorrhea, genital hypoplasia, obesity, repeated abortion, and menstrual headaches.

Amenorrhea, Scanty Menstruation and Allied Conditions.—This is not the place to discuss the varied etiology of amenorrhea in general, but it may not be amiss to emphasize the necessity of a careful discrimination of causes as a preliminary to intelligent treatment. For example, amenorrhea in some cases must be interpreted as an effort of nature to conserve the strength of a patient suffering with some serious general disease, such as tuberculosis or anemia. A good illustration of this type of disorder was the "Kriegsamenorrhöe," the widespread prevalence of which among the women of the belligerent nations during the Great War was clearly due to the fact that they were much undernourished. Experimental studies have demonstrated how singularly sensitive the ovary is to dietary deficiencies. In clinical cases of this group the underlying ovarian disturbance and the cause of the amenorrhea is probably an actual failure of ovulation ("anovulation"). It would be both unintelligent and harmful to employ organotherapy in such cases. Similar discrimination must be made as to other causes.

In a considerable group of women otherwise in good health, however, the cause of the menstrual deficiency must be sought in a hypofunction of the ovary, whether this is primary or secondary. The recent studies of Smith and Engle, and of Zondek and Aschheim, already referred to, bear out the clinical impression that a large proportion are of primarily

22. Weichert: Production of Placentomata in Normal and Ovariectomized Guinea-Pigs and Albino Rats, Proc. Soc. Exper. Biol. & Med. 25: 490, 1928.

hypophyseal origin. But, since the effect of ovarian organotherapy is a purely substitutional one, the amenorrhea would seem amenable to correction, provided one can place a sufficient amount of the ovarian secretion in the patient's circulation.

Attention has been concentrated largely on the follicle hormone as the best substance to use for this purpose. Scattered reports of occasional successful results have been made, but, in the main, the consensus of opinion among those who have used this plan of treatment is that the results have been disappointing. The reason for this, according to many observers, is the fact that the dosage employed has been wofully inadequate. The preparation of the substance is tedious, and high concentrations have not up to this time been possible, because of their rapid deterioration.

My own feeling is that this is not the chief reason for failure, and that the real cause for unsatisfactory results is that in the human being the follicle substance, even in large doses, is not sufficient to bring about a development of the endometrium to its premenstrual phase, and that unless the latter is accomplished, menstruation cannot usually be brought about. The evidence for this belief I have fully discussed elsewhere.

If follicle hormone is employed, it should be administered in large doses, preferably at least 100 rat units, daily for eight or ten days, and then stopped. If menstruation does not occur in four or five days, the injections may again be resumed. It should not be forgotten that menstruation is a "withdrawal" phenomenon, the bleeding being caused by a breaking down of the endometrium which has previously been built up to a sufficiently high point by the hormone injections. In the human female the follicle hormone, which appears to be a growth principle pure and simple, is not capable of building the endometrium up beyond the interval phase, the corpus luteum supplying the final and essential "topping-off," as I have already stated.

For such reasons as this, I believe that neither follicle nor corpus luteum injections alone are as effective as a combination of the two in proper sequence. Eight or ten follicle hormone injections, followed by perhaps six of a corpus luteum extract, should be the proper plan. The difficulty with this plan is the fact that corpus luteum extracts of undoubted efficacy are not yet available, although they have been prepared by a number of laboratory investigators. When such preparations are put into our hands, I believe that ovarian therapy will have made a real advance.

My own clinical observations in this field are similar to those of most others, with usually disappointing results from follicle hormone alone, and slightly better results with the combined plan. The corpus luteum extract which I have employed is of the lipoid-containing type, made at my suggestion through the generous cooperation of the biologic department of Parke, Davis & Co., who have also supplied me with liberal amounts of the follicle substance. The laboratory efficacy of the corpus luteum extract, which I have used, in the inhibition of ovulation has not yet been conclusively demonstrated, although studies are still being made on this point, as also on the question of whether or not, in spayed animals, they will provoke the formation of placentomas when the uterine mucosa is irritated.

Vasomotor Symptoms of the Menopause.—The question of the value of ovarian preparations in the treatment of these subjective symptoms is one of the most interesting and most perplexing aspects of the whole problem. While few clinicians now will maintain that oral ovarian therapy is of much benefit in such objective disorders as amenorrhea, there are a large number who are not only willing but eager to attest its value in the treatment of the characteristic symptoms of the menopause. So competent an observer as Graves,[23] for example, in a recent paper spoke of ovarian therapy as a "near-specific" for this indication. Fraenkel[24] likewise is an advocate of the treatment, reporting not less than 90 per cent of successes (in a later paper, from 70 to 80 per cent). Many other reports of this nature might be quoted, even from those who are cynical of the value of ovarian therapy for other indications.

It is hardly necessary to urge the very great care necessary in drawing conclusions as to the value of any plan of treatment when one is dealing with subjective symptoms. On the other hand, it may properly be argued that the vasomotor flushes are certainly not altogether subjective; that they are usually easily visible to the observer, and that, although undoubtedly influenced somewhat by the patient's psyche, they recur periodically and perhaps frequently in many patients of most phlegmatic temperament. I do not know any objective way of determining the efficacy of any plan of treatment of these symptoms except to determine the effect of the treatment on the frequency and severity of these flushes, after precautions have been taken to eliminate the psychic factor as far as possible.

Two or three years ago I made observations in two small parallel series of cases, in one of which an ovarian preparation (corpus luteum) was given by mouth, while the patients of the other group received a simple tablet of bromides (5 grains, or 0.3 Gm.). In the two sets of patients the same general reassurance and "line of talk" was given. Without going into details, I may say that it was difficult to escape the conclusion that the ovarian preparation was of some value. Patients, for example, who had been having fifteen or twenty flushes during the twenty-four hour period would often report a drop to four or five. It is true that some of the patients who got the bromide were likewise benefited, but not so frequently or markedly as the other group.

Indeed, the results of ovarian therapy in cases of this type are so much less disappointing than in other manifestations of hypofunction that one is led to wonder whether the same hormone can be concerned, or whether the menopausal vasomotor symptoms may not be influenced by far smaller doses than those required for the reestablishment of the menstrual function. This aspect of the problem cannot be solved by laboratory experiments on the lower animals, and, regardless of theoretical considerations, it is pretty certain that ovarian therapy will continue to be used for the relief of vasomotor symptoms.

Furthermore, it is not fair to criticize clinicians too harshly on this point. Is any other method of treatment of these symptoms based on grounds which are any more rational, or does any other give better results? If so, I do not know of it. It goes without saying that any form of treatment should include the usual measures of hygiene, and the building up of the bodily health generally. Even more important is a proper mental reassurance of the patient as to the significance

23. Graves, W. P.: Ovarian Therapy, J. A. M. A. **89**: 1308 (Oct. 15 1927.

24. Fraenkel (footnote 19); Weibliche Sexualhormone, Zentralbl. f. Gynäk. **52**: 132, 1928.

and temporary nature of these symptoms. After all, the menopause is a physiologic epoch, and only in a comparatively small proportion of cases do its symptoms assume really pathologic proportions. And yet there are many women who approach it with dread, because of distorted ideas as to its effects on body and mind. In no field can the counsel of the intelligent and sympathetic physician be of greater service to the troubled patient than in this.

What may be expected of the newer hypodermic therapy, with follicle hormone or corpus luteum extracts, in this particular field? So far as available reports are concerned, not much, if any more, than is possible with the older oral method. Furthermore, the menopause in many women is dragged out over many months, or even years. Certainly it is too much to expect that women would cooperate very wholeheartedly in a plan of treatment requiring frequent hypodermic injections over a term of years. The compromise which most of us will probably make is to continue oral therapy unless the symptoms become very aggravated, in which case we shall be inclined to interject an occasional course of injections in the hope that they may yield quicker or more decided results. It is possible that subsequent work may change this point of view very materially, but this appraisal is written from the standpoint of such evidence, clinical and laboratory, as is now available.

Sterility.—One hesitates to discuss this subject from the standpoint of organotherapy, because there is so little known as to endocrinopathic causes of sterility. There can be little doubt, *a priori,* that such cases occur, especially when the sterility is combined with amenorrhea. But whether, in any particular case, we are dealing with anovulation or with a deficiency of follicle or of corpus luteum hormone or some other endocrine factor, is obviously beyond our ken at this time. Organotherapy in sterility is still in the empiric stage. The reports of occasional successes can, at the best, mean little more than that a shot in the dark may occasionally find its mark. Nevertheless, in the case of the sterile woman who longs intensely for children, and in whom thorough examination by approved methods has ruled out all other factors—though not until then—I for one would not hesitate to experiment with these at least harmless organotherapeutic measures, preferably hypodermically, in the hope that by a providential strike some unknown block in the endocrine chain might be overcome. But I would do this in full realization of the unscientific nature of the procedure, and in the full expectation of failing in the vast majority of cases. The recent work on the relation of the pituitary to the ovary, to my mind, offers far more hope in the ultimate treatment of endocrinopathic sterility than any development of recent years, but, at this writing, no means of clinically applying this experimental work is as yet apparent.

Other Indications.—In such conditions as those listed in group 4, in which the etiologic rôle of hypogenitalism is far less clearly definable than in those discussed, there is little reason to expect much benefit. If used at all, ovarian therapy, as in cases of sterility, must, in the present state of our knowledge, be employed on empiric or semiempiric grounds, and only because of the fact that in most of these conditions other methods of treatment are equally unscientific and equally apt to be disappointing. In addition to these indications ovarian substances have been used, by either the oral or the hypodermic route, for a host of other conditions, such as the vomiting of pregnancy, exophthalmic goiter and epilepsy, in which there is not the slightest reason to expect benefit, and in which not the slightest benefit is ordinarily seen.

HYPERFUNCTION OF THE OVARY

Very little is known about clinical syndromes referable to excessive function of the ovary. Indeed, there is perhaps only one condition in which the scientific evidence for such a hyperfunction is fairly complete. I refer to the so-called functional uterine bleeding, which occurs most frequently at the menopausal age, but which is not rare at or shortly after puberty, although it may be noted at any age during reproductive life. The pelvic organs are characteristically perfectly normal from an anatomic standpoint. There is almost always an associated hyperplasia of the endometrium, which, however, is unquestionably merely the result of the ovarian dysfunction. The evidence for these statements, which I believe to be quite complete, I have presented in previous publications.[25] The characteristic ovarian finding is an absence of corpora lutea and a persistent mature graafian follicle, within which a well preserved ovum may usually be found (Schröder). These histologic conditions, viewed in correlation with the now well known physiologic effects of the follicle hormone, leave little doubt that this type of bleeding is due to an excess of the follicle stimulus and a deficiency of the corpus luteum principle.

The logical treatment would seem to be the injection of corpus luteum extract, and I believe, when an extract of undoubted potency is made available, that it will be possible to control this form of hemorrhage very readily. Even with the extracts now available, it is possible to benefit some of these patients very materially. This is especially true of those in whom the hemorrhage takes the form of menorrhagia rather than metrorrhagia. By daily injections of a lipoid-containing corpus luteum extract for six or eight days before the onset of the abnormal menstruation, the amount of the bleeding is often kept within normal bounds, and patients may often be carried along until the endocrine balance is readjusted; for such a tendency to spontaneous readjustment is present in a considerable proportion of cases. It need scarcely be added that such treatment should never be resorted to until it has been demonstrated, usually by diagnostic curettage, that the hemorrhage is really of this functional nature and not due to some definite anatomic lesion, such as cancer. In the case of younger women, in whom the possibility of future pregnancy is of prime importance, organotherapy is always worth trying before resorting to radiotherapy, which is fraught with many objections in younger patients.

PRACTICAL DISADVANTAGES OF HYPODERMIC MEDICATION

While the superiority of the hypodermic over the oral route for the administration of ovarian preparations appears to have been clearly established, the method carries with it certain objections which make one doubt whether it will achieve more than a limited vogue. Even in the treatment of amenorrhea and allied conditions, a single course of injections entails daily visits to the physician's office for from seven to four-

25. Novak, Emil: Relation of Hyperplasia of Endometrium to So-called Functional Uterine Hemorrhage, J. A. M. A. **75**: 292 (July 31) 1920. Novak, Emil; and Martzloff, K. H.: Hyperplasia of the Endometrium, Am. J. Obst. & Gynec. **8**: 385 (Oct.) 1924.

teen or more days and a certain amount of physical discomfort because of the transient soreness which the injections cause. Furthermore, the evidence indicates that the injections are purely substitutional in their action, and that they do not actually activate the ovarian mechanism itself. For this reason, even if a single course is successful, menstruation is not likely to recur unless the injections are again repeated, and so on month after month.

There are few patients who would have the patience and persistence to keep this up for any great length of time. This is especially true because the condition treated is one that is in no way inimical to perfect health. The occurrence of menstruation is certainly not an essential to physical well being, although, through ignorance of this fact, some women may suffer a good deal of mental perturbation. Aside from a consciousness of being different from others of their sex, they fear the ill effects of amenorrhea, because they believe that the function of menstruation is to throw off bodily impurities. A simple explanation of the real significance of the process does much to relieve the minds of such patients.

Others again, with somewhat better reason, wish to menstruate because of their desire for pregnancy. There is no doubt that in most cases of amenorrhea there is at least a relative, though not an absolute, sterility. This constitutes the motive which, in a large proportion of cases, impels the woman to seek relief from amenorrhea, and fully justifies the physician in attempting its relief.

In the treatment of menopausal symptoms, also, the hypodermic method, as it now exists, seems destined to play only an adjuvant rôle, as emphasized elsewhere in this paper. The menopausal symptoms are not infrequently dragged out, with varying intensity, over a period of years, and it is difficult to quicken the patient's enthusiasm in hypodermic ovarian therapy, especially when one cannot usually promise very brilliant results.

All in all, while there does not appear to be any immediate prospect of developing a preparation satisfactory for oral therapy for all the indications here enumerated, there is no question that this would be a "consummation devoutly to be wished."

SUMMARY

Great as have been the advances of the past few years in our knowledge of the physiology of reproduction, it cannot be said that they have as yet added very notably to the therapy of conditions dependent on disorders of ovarian function. The newer knowledge, however, offers a clear explanation of the failure of the ovarian therapy of past years, and, for the first time, justifies the hope that before long some at least of these functional disorders will be amenable to organotherapeutic measures.

The question as to the singleness or duality of the ovarian secretion is still undecided, although, in my judgment, the evidence indicates that the follicle and corpus luteum hormones are not the same, and that both play important parts in the human sex cycle. This factor, even more than that of inadequate dosage, is probably responsible for the unsatisfactory results achieved from the employment of the follicle hormone itself. For this reason, it is more logical to combine with it the use of corpus luteum extract, imitating the sequence believed to occur in the normal sex cycle.

One of the problems still to be solved, in spite of the encouraging results achieved by individual workers, is that of preparing a potent corpus luteum extract. The standards of potency are of course very different from those of the follicle hormone, a fact which some workers appear to overlook.

Both from a clinical and laboratory standpoint, the evidence indicates that the oral administration of ovarian, corpus luteum and ovarian residue extracts has little or no value in the treatment of such objective disorders as amenorrhea. In the treatment of the characteristic vasomotor symptoms of the menopause, there is much evidence, though necessarily only clinical, that oral therapy is of value.

While the hypodermic administration of the newer extracts is, on the basis of undisputed laboratory investigations, without doubt the method to be preferred, it possesses serious practical disadvantages which will almost certainly limit its applicability very materially. These disadvantages, enumerated in my paper, are enhanced for the present by the comparative scarcity of potent extracts and their rather considerable cost. As the ovarian follicle hormone at least possesses a slight effect when administered orally (not more than one-twentieth the hypodermic effect), it is not impossible that some form of satisfactory oral therapy may yet be developed, either by developing new sources of supply or by increasing the potency of the substance by some artificial means. This would be a contribution of real importance.

Recent investigations, which demonstrate the profound effect produced on ovarian function by repeated implantations of anterior pituitary gland tissue, lead to the hope that future work along this line may yield some method of applying this new knowledge therapeutically.

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ABSTRACT OF DISCUSSION

DR. WILLIAM ENGELBACH, St. Louis: I believe that gynecologists and obstetricians take a little one-sided view of both the diagnosis and the absolute end-results of organotherapy on primary and secondary symptomatology, resulting from ovarian insufficiency. The trend of information along this line indicates that there is more than one internal secretion supplied by the ovary. The probabilities are that those coming from the follicle and the corpus luteum have to do with the so-called primary functions of the ovary, ovulation, procreation, and associated signs and symptoms. There probably is an internal secretion from the stroma and the interstitial portion of the ovary similar to that of the testis which has to do with the constitutional or so-called secondary sex complex of the ovary. These correspond to a certain extent to the development of the secondary sex characters and the various psychic vasomotor symptoms following castration and in the menopause. It is difficult for me to make my ideas coincide, however, with the deductions Dr. Novak has drawn to the symptomatology following amenorrhea, which I would attribute to the interstitial portion of the ovary. I cannot agree that these women are comparatively free from symptoms, are happy and have no serious effects from the cessation of the menses. Analyses in a large number of cases showed that they have very serious reactions. Any one who sees a great number of these patients with ovarian insufficiency, either primary or secondary, must realize that they do have very serious constitutional disability. The disability is often extreme; for instance, persistent vomiting, over a long series of years, with very marked nervous and cardiovascular symptomatology so severe as to incapacitate these patients absolutely. It has been my experience in treating a large number of castrates, aged from 15 and 16 years up to late adult life, that positive relief from these symptoms was obtained by giving large doses of ovarian substance hypodermically. We say, and I think conservatively, that in from 25 to 35 per cent of these patients, good results have been noted.

DR. EMIL NOVAK, Baltimore: Dr. Engelbach spoke of a possible third secretion from the ovary, derived from the stroma or interstitial cells. This, however, is purely speculative, as I know of no evidence whatever for such a view. In the human ovary there is no histologic element to be demonstrated which is analogous to the interstitial cells of the testis, except during pregnancy, when the so-called thecalutein cells produce what is sometimes called the interstitial gland, considered by many the analogue of the male interstitial cells. I made it plain in my paper that the symptoms of the menopause, while mild and unimportant in many cases, may, in others, be so severe as to necessitate treatment. I certainly do not agree with Dr. Engelbach that amenorrhea frequently produces unpleasant symptoms in itself. I am sure that every gynecologist will agree that in the overwhelming majority of cases the woman complains of few other symptoms than the absence of menstruation. Certainly such symptoms as vomiting and heart disturbances are not characteristic of amenorrhea. If they are present I would be inclined to believe that both these symptoms and the amenorrhea are together due to some underlying condition. We are dealing in this discussion with cases of the usual functional type, rather than with those due to such organic lesions as, for example, pituitary tumors. Many clinicians have used anterior pituitary preparations of one form or another by mouth or by the hypodermic method for many years. Some, like Dr. Engelbach, have reported good results, but I do not think that this is the general experience, nor is it in conformity with laboratory investigations. The work of Smith and Engle, to which I have referred in my paper, indicated that anterior pituitary substance by mouth was worthless. Such studies as this will do much to clarify the relation between the pituitary and the ovary and will serve as a guide to rational organotherapy.

ORGANIZED MEDICINE AND INDIVIDUAL HEALTH AND MEDICAL GUIDANCE *

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It is my privilege to present at this time certain observations based on an analysis of the character and significance of a rather extensive correspondence with lay citizens in all parts of the United States on the subject of medical and health information. Thousands of inquiries annually, seeking health and medical guidance, are addressed to public and private agencies—generally national agencies with no facilities for handling such inquiries other than the written reply. Now, while helpful advice and guidance can be given to a certain percentage of these inquiries, yet if the experience of one of those "national information bureaus," the insurance company with which I am connected, is a satisfactory guide, then the large bulk of correspondence that ensues is futile for reasons inherent in the procedure.

A few seek advice concerning a community health problem and can be answered or intelligently referred. A few raise a theoretical question on personal hygiene and can legitimately be answered on general theoretical lines. A few want guidance with reference to an advertised and fraudulent cure and can safely be advised. These can frequently be helped by correspondence.

However, there remain the great majority who are or who think they are ill, who have tried or plan to try medical service, or advertised cures, and who want medical advice. Some of these are new in their community and want the name of a reliable physician. Some want to find a specialist, though that may not be what they need. Some submit symptoms and want a diagnosis and suggestions for treatment by mail. To all of these, what is the answer? The answer is, "See Your Doctor." Why is this a futile reply? Because they haven't any doctor or don't know the right kind or don't know how to find a specialist or don't know the difference between a qualified practitioner of medicine and a "Doctor" of any one of the flourishing varieties of quackery.

Incidentally, these thousands of medical inquiries constitute not the only channel through which the public is being urged to "See Your Doctor." The organization with which I am associated, for instance, dins this message into the ears of its 25 million members, hundreds of millions of times a year. Forty-seven million health pamphlets distributed annually begin and end with "Ask Your Physician." Health films seen by 9 million people advise "Consult Your Physician." Monthly magazine advertisements reaching 30 million readers preach sound medical care and condemn quackery. Millions are reached daily by radio, "Your Doctor's Advice" being frequently urged. Four hundred thousand policyholders have been given a periodic examination and referred to private medical facilities for advice and treatment. Three and a half million bedside nursing visits are given yearly, only when the patient is under the care of "a regular licensed physician." Does much of this "See Your Doctor" advice share the same limitations and defects as the advice given by correspondence? If so, what is the remedy? Must we not find a shorter cut to medical guidance, establish somehow a local direct circuit, and connect up the physician and patient in an adequate and justifiably trustful relationship?

But to get back to the questions raised in this correspondence, what, in a little more detail, do people who seek medical advice by mail want to know? What do they ask about? Of course, not all of the inquiries are serious.

"Is certified milk fattening? I would like to fatten my husband and at present he weighs only 98 pounds soaking wet." One lady writes that she is suffering from an enlargement of the "oriole" in her throat. Another writes that he is unable to detect odors as readily as other people and asks, "Which of the exercises is best for this failing of mine?"

But of the more serious and less grotesque inquiries, the following are perhaps fair examples:

"Would you advise the use of insulin in my case?" "How long should treatment for a 4-plus Wassermann reaction be continued?" "Are my decayed teeth affecting my general health?" "Can you suggest some special doctor who might be able to put me on my feet again as I am troubled with heart disease?" "I would appreciate very much if you would tell me of a good diagnostician, as I suffer greatly from indigestion." "I have suffered with foot troubles for eleven years. Can you recommend an orthopedist to me?" "I have sores on my arms and body. Can you do anything for me either by sending or recommending a doctor?" "Can you recommend a good doctor for goiter—one whose charges are reasonable?"

Many of the inquiries have also to do with periodic health examinations. Apparently people are to a greater and greater extent going to their physicians for this service. With what result? One writes: "Some doctors don't seem to know what you are driving at

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when you come in and say that nothing is the matter with you, but you want to be examined." Others write: "Where would you advise a person to go and get a good efficient general examination?" "I wish to be thoroughly examined so will you please send me the name of a doctor?" "Could you kindly advise me where three members of one family may have thorough examinations and obtain correct analyses of their conditions, and recommendation of how to live to gain good health, also at what cost this may be obtained?" The general hit or miss slogan "See Your Doctor" is not exactly the perfect answer to all of these questions.

In the foreging I have presented certain observations rather sketchily, and have by no means exhausted the range of detail that might be brought to bear. I have perhaps, however, presented enough to indicate the logic and legitimacy of the following conclusions:

1. The public is willing to accept and indeed actively desires protection against quackery and fraud.

2. The public seeks direction to safe and helpful medical and health services and facilities.

3. Thousands want this guidance and know that they need it. Thousands raise such questions with numerous agencies by correspondence and are wisely though very inadequately in the great majority of cases told to "See the Doctor." The answer is not enough.

4. The problem can never be handled on a national basis or by correspondence. What is vitally needed is a local information service and a medical guidance bureau to which persons may be advised to turn for impartial, unprejudiced, scientific and sympathetic personal guidance.

If this service is to be given locally, should it be the work of the health department, of voluntary agencies or of local medical societies? Perhaps all need to participate, but in my opinion it would appear essentially to be the obligation of the local organized medical unit, for it involves in a sense rationally and intelligently putting its own house in order.

Obviously the public is searching for this type of service and is choosing, among numerous channels, some which are roundabout detours or blind alleys. Primarily, however, it is on the hunt for the medical profession and evidently is going to find it. Is it going to find it lacking? I fear an affirmative answer, and much lost confidence, prestige and opportunity, unless definite service measures are undertaken to meet the need at the only point where it can effectively be met: namely, in the local communities.

The question as to how this is locally to be met, and the question as to who has the primary responsibility may, of course, be variously answered. It is obvious that there is involved, not necessarily the so-called socialization or state control of medicine, but certainly a more purposeful and social use of medical facilities. We have for dissemination certain facts about disease prevention, and we have for the treatment of disease certain technical procedures for application to individual problems. We are faced with the difficulty of devising a more direct and effective method for the distribution of this knowledge and for the application to individual health and disease problems of the best available technical knowledge and skill. Now, medical organizations, from this point of view, would seem to be faced with three possibilities, a choice accentuated by the public demand for guidance:

1. Definite state control, with a more or less compulsory degree of public service in this field.

2. Semipublic provision through salaried medical service by means of semipublic pay or free clinic facilities.

3. The incorportaion of health and medical guidance into the routine practice of medicine, under the auspices of private medical organizations.

It is because the latter possibility seems to offer the greatest potential advantage at the present time that I feel it worthy of the special attention of the organization represented here.

Whether or not the responsibility for giving satisfactory medical guidance and advice on a local basis is to be fully assumed by local medical organizations, or whether this responsibility may be to some extent shared by cooperating health and social agencies, does not alter the fact that the accomplishment of this service must be approached along three principal lines:

1. It is necessary to get physicians in increasing numbers ready to practice private preventive medicine and teach personal hygiene. Of course, the periodic health examination is basic in this program. More concrete efforts are needed to encourage competence on the part of the medical profession in this field, and public confidence in its proficiency. The incorporation of more preventive medicine in medical school curriculums, postgraduate educational measures, medical extension courses—all such measures presumably need wider application. This medical educational work is an obligation which rests primarily on medical schools, medical societies and similar professional organizations.

2. It is important to have the public more fully aware of its needs in this field, and of the competence and willingness of orthodox medicine to meet those needs about which it is already conscious. Here is a field in which many organizations can be of assistance. The extensive volume of literature, the films and the numerous nursing visits of organizations, such as that with which I am associated, are instruments to the accomplishment of this end. Health departments, social and educational agencies and business concerns can all contribute to the fostering of a public attitude that will seek and use an adequate service when it is established.

3. Then, finally, it is necessary to establish a local machinery which will purposefully and usefully associate service with need. This means, apparently, as stated previously, a local bureau for the dissemination of information for the education of people in sound medical methods and for medical guidance. Such a bureau would be made known to the public through dignified publicity. It would arrange for individuals to see competent physicians. It would keep patients out of the hands of quacks and frauds. It would facilitate a wise choice of medical counsel from approved lists of physicians or specialists endorsed by the county society on a functional and geographic basis. Inquiries would be answered, though of course many would require a more searching scrutiny and more personal nonmechanical attention. The service must be more than a gesture, more than purely informational—it must be real personal guidance.

Such guidance bureaus or service units established on a local basis, sponsored by or possibly operated by local medical societies, would foster the use of legitimate private medical facilities, would effectively oppose quackery, would lead to the dissemination of health information, would foster the development of the private practice of preventive medicine, and would have a very advantageous educational effect on the

medical profession itself, through increasing the necessity for the individual practitioner's participation in preclinical medicine and health education.

It is believed that the stimulation and leadership of the American Medical Association is needed in this field. It is suggested that this organization, possibly through this section, might advantageously consider this whole problem, study carefully the scattered efforts now being made to meet it, analyze the somewhat haphazard experience of county medical societies and other agencies in this field, and work out, if possible, a consistent, balanced, experimental plan that might in turn be fostered through the county medical societies in many if not the great majority of the communities of the United States.

ABSTRACT OF DISCUSSION

DR. ALEC N. THOMSON, Brooklyn: In Brooklyn we have one newspaper that conducts a "human interest" column and carries the syndicated health talks of Dr. Brady. Both departments constantly say, "Consult your doctor." Recently they became more specific, and in answering a correspondent who asked where help could be obtained for diabetes—"real help at a moderate cost and not such help as is given by one Manhattan doctor who wants $25 to tell you what you already know —'don't eat starch and sugar'"—the paper said, "Write to the Kings County Medical Society, who will not recommend any one physician, but will give definite, accurate, up-to-the-minute information, and a list of reputable physicians." The letter arrived! We get quite a number of letters in a year. We get more telephone calls. Recently we kept tab on the queries coming in. During the past few weeks we have had from six to ten requests a week for information that comes within the scope of Dr. Armstrong's paper. Some one wants a reference to a stomach specialist. Our answer is to give the names of four physicians, members of the society, who are listed as of the attending gastro-enterologic staff of different hospitals. Another person wants a woman physician specializing in gynecology. Of the women physicians in Brooklyn, two were listed on hospital staffs in gynecology and obstetrics. Those were the names we gave. Similarly we have calls for reference to a cancer specialist. One afternoon brought a request for reference to a colored physician to whom could be sent the colored patients calling on a white physician. And so the variety of serious inquiries continues with a request for a list of institutions caring for mental patients; a request for an opinion about the propriety of physical therapeutists caring for obstetrics in an "institute," and such questions as "Was Dr. Walter Reed a martyr to science?" was asked. The uselessness of the routine answer! "Consult your doctor" is a slogan that presents the county societies with a problem and a real job. It is a big problem. The service cannot be of a routine character. It cannot be met by the telephone operator. It requires medical background; an unswerving honesty of purpose; considerable time per unit of inquiry, and, above all, a humanitarian point of view that will recognize both sides of the question.

DR. JOHN M. DODSON, Chicago: About four years ago I prepared an editorial for *Hygeia* under the title "How to Choose Your Own Doctor," in which an endeavor was made to point out the things which the individual should consider in trying to select a physician. The points mentioned were essentially the same as those Dr. Armstrong has discussed. I should say that we receive at the headquarters of the American Medical Association in Chicago an average of three or four requests daily that we recommend a physician, usually a specialist. Last year a prominent leader in the obstetric world wrote a series of articles in one of the popular magazines in which he said that if any one wanted to learn of a good obstetrician in any locality, all he needed to do was to write to the American Medical Association headquarters. That unfortunate misinformation kept us busy for several weeks and we still hear occasional reactions from it. I shall be very anxious to learn from Dr. Thomson after their plan has been on trial for a little time whether it is effective with the members of their own society. The Cook County Medical Society, or rather the Chicago Medical Society, refuses to give that kind of information, and, of course, we make no attempt to give it at headquarters, except to say, in a general way, that it is the business of the family physician to recommend a specialist. That is part of his job, and if the inquirers do not have a family physician, then they may safely ask one of the leading medical schools to name a physician who is a specialist. The American Medical Directory ought to be much more widely used for this purpose. In the first place, it gives the sort of information which is a fair guarantee of the fitness of an individual. If one is seeking a specialist, there appears in the front part of this volume a list of members of the special societies of national scope. It may safely be said that if a man's name appears in the list of members of the American Orthopedic Association, he is a competent orthopedist, for he has been chosen for membership in the select society of his peers. I question whether we might not publish the list of the local special societies such, for example as those in Chicago, or in New York. I do not believe, however, that this plan of having the local medical society set up an information bureau to give information as to the relative qualifications of its members can be made to work satisfactorily. Who is to be the judge of the relative rank of these members? I am certain that my opinion of the relative merit of the specialists in any particular line in Chicago would not agree exactly with that of any other Chicago physician equally competent to judge.

DR. B. FRANKLIN ROYER, New York: I want to tell you of a scheme that I found working actively five years ago at the San Joaquin Health Unit in California—a plan for supplying the names of the physicians and their special kind of activity to inquiring persons. Dr. Sippy had worked out, in connection with the health center activities and his public health nursing activities at Stockton and in the whole San Joaquin County Health Unit, the following plan: He asked a consulting committee of the county medical society of San Joaquin to confer with him and he pointed out problems that are certain to arise in public health work. For example, a nurse working with the family will be asked to recommend a physician. The family does not have a family physician and has never had one. Various members are coming to the well baby clinic and maternity clinic and have never had a physician. Still others move into the community and have not employed a physician. He suggested to this committee of the county medical society that it print a local directory of all members of that county society. No irregulars or quacks would then be on the list. He suggested further that it consider the advisability of listing the special work of each physician, so that the man who limited himself to surgery, obstetrics or ophthalmology would have that fact set out in the directory as he desired. The nurses, with the full knowledge of the county society, were permitted to hand to the inquirer this local list prepared by the local profession and approved by the local profession. The plan worked admirably.

DR. DONALD B. ARMSTRONG, New York: I quite agree with Dr. Dodson that a county society should not make a discriminative selection between individual physicians or specialists; yet I believe that the situation can be handled in a somewhat more generalized way, as is being done apparently in Kings County, where individuals on their own initiative are permitted to make a selection from a qualified group of physicians—general practitioners or specialists—approved by the county society, having membership in the society, and selected on a geographic basis with an office and practice in a particular neighborhood. In any event, from the point of view of the organization with which I am associated, which I think is representative of a number of other somewhat similar agencies, it is a considerable satisfaction at the present time, when we are in receipt of thousands of such letters yearly, to be able in a few instances now, when letters of that type come from Brooklyn, not to have them answered by a form letter "See your doctor" but to refer them to the public health committee of the Kings County Medical Society with the confidence that these individuals at least will be given intelligent information and personal medical guidance. That is a practice which we certainly would like to see extended on a wider basis and in many other communities, provided the experiment and procedure proves in Kings County and elsewhere to be a sound one.

PROLONGED INSULIN HYPOGLYCEMIA WITHOUT SYMPTOMS*

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In connection with some experiments on the corpuscle-plasma distribution as related to insulin shock,[1] we were particularly impressed by the length of time that hypoglycemia can exist before symptoms appear. On searching the literature for records of cases with prolonged hypoglycemia following single doses of insulin given subcutaneously, we were surprised to find very few examples in which blood sugar determinations were made frequently enough to give an accurate idea of the curve. There are no complete publications in which the blood sugar curves in man have been carefully followed to the point of a reaction, such as are recorded for the ordinary laboratory animals. The only available information of this nature is to be found incorporated into various studies made for other purposes and in cases in which the reactions came as rare accidents in the procedure. Most of the strictly clinical papers present figures obtained after the onset of symptoms, so that they do not reveal anything concerning the blood sugar readings between the administration of insulin and the attack itself.

HISTORICAL REVIEW

One of the outstanding features of the early work on insulin was the discovery that following its injection in large doses the blood sugar of animals could be lowered to levels much below the normal.[2] The train of symptoms that ensued was designated as a hypoglycemic reaction. In rabbits it was found that convulsions came on in the majority of instances when the blood sugar fell to 45 mg. per hundred cubic centimeters although a few of these animals remained normal when the blood sugar level was as low as 35 mg. In the reports of animal experiments we find two papers containing examples of prolonged hypoglycemia without symptoms. McCormick, Macleod, Noble and O'Brien[3] show several curves obtained in rabbits in which the blood sugar level dropped below 50 mg. per hundred cubic centimeters and remained there for from one and one-half to two and one-half hours before convulsions appeared. Dickson, Eadie, Macleod and Pember[4] show two very interesting curves obtained with insulin on a normal dog which illustrate long periods of hypoglycemia, both with and without convulsions. These results are suggestive but, as has been pointed out by Macleod[5] and others, too much importance must not be attached to animal experiments with insulin hypoglycemia for the reason that, when purely objective signs must be relied on, it is difficult to evaluate properly any but the most severe symptoms. The chief study, therefore, has to be made in patients with diabetes if anything is to be learned of the early effects of low blood sugars.

When the pancreatic extract was applied clinically by the Toronto workers,[6] it was found that, "when the blood sugar percentage falls to 0.07 per cent under the influence of insulin, the patient becomes aware of it. He may first complain of hunger, or more often a sense of weakness or fatigue. . . . Almost constantly present is a feeling of tremulousness; some incoordination for fine movements. . . . The severity of these symptoms increases with the hypoglycemia, and the lowering of the blood sugar near to 0.052 per cent produces very acute distress or even mental disturbances, such as confusion and disorientation."

They also state (footnote 2, second reference, p. 645) that, "when a reaction has already been experienced, the onset of a subsequent one is usually recognized by the patient when the blood sugar percentage falls to some point between 0.08 and 0.07 per cent. . . . Usually this is followed by objective signs—most frequently a sweat, which may be very profuse; pallor and flushing is common; sometimes a change in pulse rate.[7] In children this increased pulse rate is the outstanding feature. At the same time the subjective symptoms become more severe; the feeling of nervousness may become definite anxiety, excitement, or even emotional upset. The feeling of tremulousness is possibly a form of incoordination. Patients have shown a loss of power to perform fine movements with their fingers. Actual tremor has not been observed at this stage. At times there is a feeling of heat or cold, sometimes of faintness. Some have complained of vertigo; others of diplopia. This is the extent of most reactions, and the blood sugar is usually between 0.07 per cent and 0.05 per cent. Much more severe manifestations are observed with further lowering of the blood sugar. Marked excitement, emotional instability, sensory and motor aphasia, dysarthria, delirium, disorientation, confusion, have all been seen." In the same paper it is pointed out that occasionally patients have not experienced any symptoms with blood sugar at much lower levels (i. e., 54 mg. per hundred cubic centimeters). Only fragmentary data on patients of the latter type is given, however. In the literature we find only three cases of this sort that are at all complete, which we shall summarize.

TABLE 1.—*Blood Sugar in Milligrams per Hundred Cubic Centimeters (Shaffer-Hartman Method)*

Before Insulin	Hours After Insulin			
	1½	3	4½	6
93	70	59.6	57	67.3

Jonas[8] shows the twelve hour blood sugar curve on a patient (age and weight not recorded) who received no carbohydrate for breakfast, 36 Gm. at noon and 23 Gm. at 5:30 p. m. Insulin was given as follows: 9 a. m., 5 units; 12 m., 10 units; 5 p. m., 5 units. Beginning with a fasting blood sugar of 150 mg. per hundred cubic centimeters, the concentration falls gradually until 2 p. m. to a level of 50 mg. It remains either slightly above or below 50 mg. from 2 p. m. until 6:30 p. m. It then slowly rises to 100 mg. by 9 p. m. No comment is made on these observations nor is any reaction mentioned. The Folin-Wu blood sugar method was used.

Similar figures are to be found in one case described by Kahn.[9] The age of the patient is not recorded; the weight was 51 Kg. On 8 units of insulin and without food, the curve was as shown in table 1.

This patient had never received insulin before the experiment. No reaction is noted by the author, and the case is passed over without special mention, possibly because the hypoglycemia was not very marked.

* Aided in part by a grant from the De Lamar Mobile Research Fund.
* From the Laboratory of Experimental Surgery and the Laboratory of Biological Chemistry, Medical School of Harvard University.

1. Trimble, H. C., and Maddock, S. J.: The Effect of Insulin on the Sugar Content of Erythrocytes, J. Biol. Chem. **78**: 323 (July) 1928.
2. Banting, F. G.; Best, C. H.; Collip, J. B.; Macleod, J. J. R., and Noble, E. C.: The Effect of Pancreatic Extract (Insulin) on Normal Rabbits, Am. J. Physiol. **62**: 162 (Sept.) 1922. Fletcher, A. A., and Campbell, W. R.: The Blood Sugar Following Insulin Administration and the Symptom-Complex Hypoglycemia, J. Metab. Research **2**: 637 (Nov.) 1922. Macleod, J. J. R.: Insulin, Physiol. Rev. **4**: 35 (Jan.) 1924. Banting, F. G.; Campbell, W. R., and Fletcher, A. A.: Further Clinical Experience with Insulin, Brit. M. J. **1**: 8 (Jan.) 1923. Macleod, J. J. R.: Carbohydrate Metabolism and Insulin, New York, Longmans, Green & Co., 1926.
3. McCormick, N. A.; Macleod, J. J. R.; Noble, E. C., and O'Brien, K.: The Influence of the Nutritional Condition of the Animal on the Hypoglycemia Produced by Insulin, J. Physiol. **57**: 234 (March) 1923.
4. Dickson, B. R.; Eadie, G. S.; Macleod, J. J. R., and Pember, F. R.: The Effect of Insulin on the Respiratory Exchange of Normal Animals, Quart. J. Exper. Physiol. **14**: 123 (Jan.) 1924.
5. Macleod (footnote 2, third reference).
6. Banting, Campbell and Fletcher (footnote 2, fourth reference, p. 11).
7. Cannon, McIver and Bliss (Am. J. Physiol. **69**: 46 [June] 1924), working on cats, have shown that these symptoms are due to stimuli from the sympathetic division of the autonomic system and increased epinephrine production. These two factors come into play in this animal whenever the blood sugar falls below 70 to 80 mg. and apparently serve as a defense mechanism against hypoglycemia.
8. Jonas, L.: A Report of Sixty-Four Cases of Diabetes Mellitus Treated with Insulin, Am. J. M. Sc. **166**: 687 (Nov.) 1923, chart 2.
9. Kahn, S. H.: Reduction of Human Blood Sugar by Means of Insulin, Boston M. & S. J. **191**: 161 (July 24) 1924, case 16, table 3.

Harrison's[10] patient, a boy, aged 11 (weight not recorded), received 8 units of insulin before breakfast. The daily dietary consisted of carbohydrate, 60; protein, 70, and fat, 140. The exact amount given at breakfast is not noted. April 19, 1926, the results shown in table 2 were obtained.

TABLE 2.—*Blood Sugar in Milligrams per Hundred Cubic Centimeters (Maclean Method)*

	Hours After Insulin				
Fasting	1½	2½	3½	5	6
Not given	63	60	56	137	125

No signs or symptoms of a reaction were noted. These constitute the only available results on human patients in which the data are sufficient definitely to demonstrate prolonged hypoglycemia.

John[11] has reported one case showing a fairly long continued low blood sugar curve; but, since insulin doses were repeated every two hours, the results are hardly comparable with those just cited.

Although the Toronto workers[2] clearly state that symptoms of hypoglycemia do not always appear shortly after the blood sugar drops below a normal level, it does not appear to be generally appreciated that such may be the case. The paucity of illustrations in the literature indicates as much. It is our purpose to point out that this situation may be more prevalent than is generally recognized. Probably it has escaped very much attention because of the rather infrequent blood sugar determinations made in the routine treatment of diabetes. In this connection the recent observation of Harrop[12] is of interest.

He states that blood sugar determinations were made every three to four hours for twenty-four hour periods on a large series of diabetic patients. He does not present these data in detail but summarizes the results as follows: "We have been struck by the large number of low blood sugar readings, between 75 and 45 mg. per hundred cubic centimeters, in patients with severe diabetes, both in those who have taken insulin for a considerable period and in those who had received it for only a short time. Most of these patients have not had any symptoms of overdosage with insulin."

METHODS

Collection of Samples.—The patient was brought into the laboratory for the collection of every sample of blood during the day. When samples of blood were collected during the night, the patients slept in the laboratory. When blood was taken by venipuncture, heparin was used as an anticoagulant. In the experiments in which samples were obtained every hour for twenty-four hours, the blood was taken from the finger tips by the new microtechnic of Folin.[13]

Analytic Methods.—Blood specimens when obtained by venipuncture were analyzed by the Folin-Wu method.[14] For the analysis of the microblood samples obtained in two long continued experiments, we have employed the new colorimetric ferricyanide method of Folin.[13] Dextrose from the U. S. Bureau of Standards was employed for the preparation of the standard solutions. Precipitation of protein was accomplished immediately after the blood was drawn. The sugar determinations were commenced as soon as several samples had accumulated, and most of the measurements were accomplished while the experiment was in progress. In two instances in which low values were anticipated, we took samples by venipuncture and by finger puncture simultaneously. The venous blood was analyzed by the Folin-Wu procedure and the finger blood by the Folin ferricyanide method with the results shown in table 3.

REPORT OF CASES

CASE 1.—T. R., an American boy, aged 6, admitted to the Children's Hospital, Feb. 24, 1928, because of difficulty in keeping the urine sugar free and frequent severe insulin reactions, had had diabetes for two and one-half years, and had been admitted twice previously in diabetic coma. Previous attempts to avoid glycosuria by reducing the carbohydrate intake over a period of several months had resulted in cessation of growth and development. While in the hospital he was on a daily diet of carbohydrate 65, protein 50, and fat 85.5, with 10 units of insulin before breakfast, 8 units before lunch and 8 units at 5 p. m. Under this regimen, insulin reactions were occurring every afternoon from 4 to 5 o'clock.

On the day of the experiment the fasting blood sugar was 230 mg. per hundred cubic centimeters. He received 10 units of insulin at 8 a. m. and 50 Gm. of orange juice at 10 a. m. At 11:20 a. m. the blood sugar was 43 mg.; yet he was alert, responsive, talkative, and quite cooperative. At 11:45 a. m. 6 units of insulin was administered (i. e., 2 units less than he had been receiving). At 12:10 p. m. luncheon, consisting of carbohydrate 20, protein 17.5, and fat 29.5 was given. At 1:20 p. m. the blood sugar was 36 mg., but the patient remained quite as normal as he had been throughout the morning. At

TABLE 3.—*Blood Sugar in Milligrams Per Hundred Cubic Centimeters*

Venous Blood (Folin-Wu Method)	Finger Blood (Folin Ferricyanide Method)
39	40
49	45

2 p. m. he became drowsy and soon fell asleep. Since this was the usual hour for his afternoon nap, it did not seem remarkable. At 3 p. m. he awakened crying, and could not be quieted. The blood sugar at 3:10 p. m. was 31 mg. The crying continued more or less throughout the next half hour. At 3:45 p. m. convulsive movements made their appearance. These were relieved in about ten minutes by the administration of 50 Gm. of orange juice.

It is regrettable that our data are not more complete in this case; yet they show that the morning dose of insulin reduced the blood sugar to the low level of 43 mg. If a postprandial rise took place it was of brief duration, since the blood sugar dropped to 36 mg. in less than an hour after the meal. The absence of a postprandial rise in diabetic patients has previously been noted by Jonas, Miller and Teller,[15] and it may well be that this case is of the same type. Our figures show definitely that the hypoglycemia lasted for almost two hours (from 1:20 p. m. to 3 p. m.) before symptoms were manifest, and if we include the period from 11:20 a. m. to 1:20 p. m., the hypoglycemic stage covers four hours or more. Convulsions did not come on for two hours and twenty-five minutes after the blood sugar of 36 mg. (Folin-Wu) was determined.

CASE 2.—J. M., a laboratory worker, aged 22, single, white, American, known to have had diabetes for six years, was otherwise in excellent health and able to do a full day's work with 24 and 16 units of insulin. He had been on a diet of carbohydrate 140, protein 75, and fat 130 for the past six months; his present weight was 63 Kg. Although very meticulous as to diet, time of eating and taking of insulin, he had had a number of very severe hypoglycemic reactions proceeding to the point of unconsciousness and convulsions. March 20,

10. Harrison, G. A.: Hypoglycemia in Children, Brit. M. J. **2**: 57 (July 10) 1926, case 7.
11. John, H. J.: A Statistical Study of One Thousand Cases of Diabetes, Arch. Int. Med. **39**: 67 (Jan.) 1927.
12. Harrop, G. A.: Hypoglycemia and the Toxic Effects of Insulin, Arch. Int. Med. **40**: 218-219 (Aug.) 1927.
13. Folin, Otto: A New Blood Sugar Method, J. Biol. Chem. **77**: 421 (May) 1928.
14. Folin, Otto; and Wu, Hsien: A System of Blood Analysis, J. Biol. Chem. **38**: 81 (May) 1919.
15. Jonas, L.; Miller, T. G., and Teller, I.: All Day Blood Sugar Curves in Nondiabetic Individuals and in Diabetic Patients With and Without Insulin, Arch. Int. Med. **35**: 289 (March) 1925.

1928, the patient took no breakfast, but drank one cup of black coffee. The following data were obtained:

8:18 a. m., blood sugar 256 mg. per hundred cubic centimeters.

8:20 a. m., 24 units of insulin subcutaneously (regular dose).

9:20 a. m., blood sugar 202 mg.

10:20 a. m., blood sugar 176 mg.

11:20 a. m., blood sugar 82 mg.

12:20 p. m., blood sugar 49 mg.

1:20 p. m., blood sugar 35 mg.

Up to the conclusion of the experiment the patient felt perfectly normal. None of the usual prodromes appeared. At 1:25 p. m. he walked about 100 feet to the elevator and a few moments later began to experience some light-headedness. On reaching the ward at 1:30 p. m., he was unable to speak clearly or coherently. At 1:45 p. m. he began to eat an orange but manifested considerable incoordination. At 1:50 p. m. he had a slight convulsion. He was forced to drink orange juice and by 2 p. m. was perfectly normal.

An analysis of the reactions experienced by this patient has shown a few interesting facts. At one period the patient was accustomed to rising at 6:30 a. m. and taking 24 units of insulin. Breakfast was eaten at 8 a. m. If luncheon was not taken promptly at noon or at a maximum at 12:30 p. m., convulsive reactions invariably occurred. During this period the patient had several reactions at 11 or 11:30 p. m. following a dose of 16 units of insulin at 5:30 p. m. On one occasion the patient prepared for bed at 11 p. m. but remembered nothing beyond undressing himself. At 2 a. m. a violent convulsive seizure awakened the other members of the household. He was found in bed without his pajamas, an amnesia apparently having begun before there was time to put on this garment. It required 1 cc. of epinephrine and 25 Gm. of carbohydrate to stop the reaction. The following morning the patient was sugar free at 6:30 a. m. At another time the patient went to a gymnasium after his usual evening meal and exercised from 7:30 to 8:30 p. m. He remembered remaining there for an hour longer, but from the moment of leaving the building at 9:30 p. m. until the following morning at 2 o'clock he had no recollection of anything. He was heard stumbling up the steps to his room at 11 p. m., but was not seen by any member of the household at that time. At 2 a. m. the noise of a convulsive seizure aroused the family and he was given epinephrine and sugar. What had occurred between 9:30 and 11 p. m. can only be surmised. The journey homeward should have required only twenty minutes but actually took one and

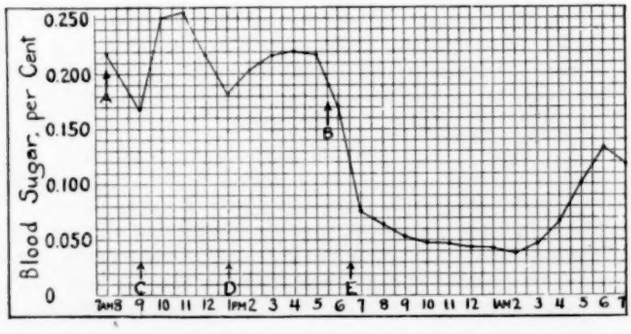

Chart 1.—Blood sugar determinations in case 2: *A*, 24 units of insulin; *B*, 16 units of insulin; *C*, breakfast; *D*, luncheon; *E*, dinner.

one-half hours. On regaining consciousness the patient found several bruises on his body and rents in the knees of his trousers, but no clues as to their cause could be obtained.[16]

Because of this suggestive history it was decided to make a study of the patient's blood sugar over a period of twenty-four hours under normal conditions of diet, insulin dosage and exercise. Determinations were made by the Folin micro method,[13] and the data shown in table 4 were obtained. These figures are shown graphically in chart 1.

The activities of the patient were identical with those of his daily routine for the previous six weeks. All food was carefully weighed to the gram. Insulin was measured with an accurate tuberculin syringe.

At no time during the evening (i. e., from 7 p. m. to midnight) were any symptoms noted by the patient. During the night the patient slept on a bed in the laboratory and was seen at frequent intervals between the

TABLE 4.—*Sugar Determinations in Case 2*

Time		Blood Sugar, Mg. per 100 Cc.	Urine Sugar	Comment
7:35 a. m.	.....	216	0	Fasting
7:40	Insulin, 24 units, subcutaneously			
9	.....	169		
9:05-9:25	Breakfast: carbohydrate, 34; protein, 24; fat, 58.5			
10	.....	250	+	
11	.....	250	+	
12 p. m.	.....	216		
1	.....	181	0	
1:05-1:30	Luncheon: carbohydrate, 59; protein, 28; fat, 37			
2	.....	204		
3	.....	218		
4	.....	220	0	
5	.....	218		
5:30	Insulin, 16 units, subcutaneously			
6	.....	170	0	
6:30-6:50	Dinner: carbohydrate, 47; protein, 30.5; fat, 42			
7	.....	75	0	
8	.....	63		
9	.....	52		
10	.....	49	0	
11	.....	49		
12 a. m.	.....	44	0	
12:05	Retired for the night	..	..	No symptoms
1	.....	42	..	Sleeping
2	.....	39	..	Sleeping
3	.....	46	..	Sleeping
4	.....	66	..	Awakened
5	.....	102		
6	.....	131	..	Sleeping
6:30	Insulin, 24 units, subcutaneously	...	..	Arose and dressed
7	.....	118	0	Night specimen
7:30	Breakfast: carbohydrate, 34; protein, 24; fat, 58.5			
8:30	.....	148	0	
9:30	.....	131	0	

hourly periods at which the bloods were taken. Absolutely nothing occurred which could be interpreted as varying from normal sleep. On rising in the morning, the patient felt refreshed and as normal as usual.

The entire experiment was controlled by the simultaneous determination of sugar curves in two normal adults. There is no reason to doubt the low values obtained, since the sugar content of the blood samples from all three subjects was measured against the same standard, and at the same hours the controls showed values between 98 and 106 mg. per hundred cubic centimeters. Also, all of the low values were checked by repetition of the determinations. In order to satisfy ourselves that this curve was not an isolated instance or accident, hourly blood sugar determinations were taken on two other nights, with essentially the same results.

We do not mean to imply that all patients having reactions show a long period of low blood sugar values prior to the development of symptoms. It is well established that excessive dosage of insulin will cause the blood sugar to drop rapidly from a high level to normal or below, with a reaction resulting soon after. The blood picture in this type of reaction is illustrated by case 3.

CASE 3.—F. G., a high school student, aged 17, white, American, known to have had diabetes for five years, had had three attacks of coma relieved by insulin. He had been on a

16. Ashe, Mosenthal and Ginsburg (J. Lab. & Clin. Med. **13**: 109 [Nov.] 1927) have reported similar loss of memory and irresponsible behavior. They do not, however, give any blood sugar readings in cases of this type. See also case 4 in the authors' series.

diet of carbohydrate 130, protein 66, and fat 120 for the past eight months, with from 20 to 25 units of insulin before breakfast and 15 units before supper; the present weight was 54 Kg.

On the morning of the experiment, he received one cup of black coffee before the first blood sample was taken. The data obtained from sugar determinations are shown in table 5.

TABLE 5.—*Sugar Determination in Case 3*

Time		Blood Sugar, Mg. per 100 Cc.	Urine Sugar	Comment
9:50 a. m.	.....	420		
10 a. m.	Insulin, 40 units, subcutaneously			
10:30 a. m.	.....	348	+	No symptoms
11:10 a. m.	.....	216	+	No symptoms
12:15 p. m.	.....	88	0	No symptoms
1:12 p. m.	.....	43	0	Hypoglycemic reaction

When these data are represented graphically (chart 2) it can be seen that a sharp, steep drop occurs, becoming more gradual in its fall at the lower levels. It is quite probable that this is typical of reactions produced by doses of insulin which are excessive for the amount of dextrose available for utilization. It would seem that most of the cases in the literature which have been followed with frequent blood sugar determinations happened to fall into this category.

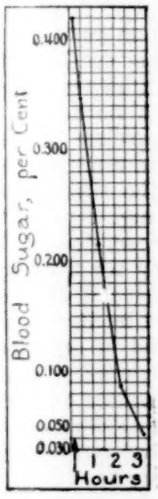

Chart 2.—Blood sugar determinations in case 3; the arrow indicates administration of 24 units of insulin.

Combinations of these two types of reactions can also occur in the same patient. An example of this is shown in case 4.

CASE 4.—N. B., a medical student, aged 27, single, white, American, known to have had diabetes for six years, had been taking about 80 units of insulin daily for the past two years and arranging his diet to suit his own conceptions of energy requirements. By dividing the insulin into four doses he had been able to remain sugar free most of the time, but severe reactions had occurred in the evening two or three times a month. The patient had a tendency toward psychic manifestations and had several times wandered away from his home during reactions. He had usually been found by the police and taken to hospitals as a case of amnesia. The diagnosis of hypoglycemia generally presented considerable difficulty on these occasions, and had sometimes been made only on telephoning to the patient's relatives.

We were able to obtain this patient for one day's study, and a twenty-four hour blood sugar curve was determined under approximately the usual activities, with the customary diet and insulin dosage. Determinations were made by the Folin micro method; the results obtained are shown in table 6 and in chart 3.

The most interesting feature of the curve in case 4 is centered about a hypoglycemic reaction which occurred in the evening. It will be noted that at 9 p. m. the blood sugar had dropped to 46 mg. per hundred cubic centimeters without producing symptoms. At 9:25 p. m. the patient complained of faintness. A blood sample taken just before giving sugar by mouth at 9:36 p. m. gave a value of 43 mg. Ten minutes later the blood sugar had dropped to 40 mg., but by 10 p. m. it had risen to 80 mg. and the symptoms had entirely disappeared. At 10:40 p. m. the level had become 52 mg. but there were no symptoms. Shortly after 11 p. m. mild symptoms recurred and two doses of dextrose of 5 Gm. each were given. From this time on the patient felt perfectly normal. He was carefully watched while asleep, but nothing occurred which would indicate a hypoglycemia, although the low levels continued until 4 a. m. These data illustrate the point that the administration of sugar during reactions does not always bring the blood sugar back to normal levels, but may produce merely a transient rise. The patient may later show prolonged hypoglycemia even though all symptoms have abated.

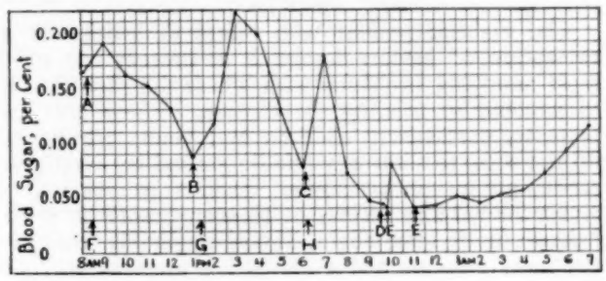

Chart 3.—Blood sugar determinations in case 4: *A*, 24 units of insulin; *B*, 28 units of insulin; *C*, 32 units of insulin; *D*, reaction; *E*, *E*, sugar; *F*, breakfast; *G*, luncheon; *H*, dinner.

In chart 4 the blood sugar curves of two totally depancreatized dogs are represented graphically.

TABLE 6.—*Sugar Determinations in Case 4*

Time		Blood Sugar, Mg. per 100 Cc.	Urine Sugar	Comment
7:50 a. m.	.....	165	0	Fasting
7:52	Insulin, 24 units			
8:25–8:40	Breakfast: carbohydrate, 22; protein, 16; fat, 18			
9	.....	190		
10	.....	161	0	
11	.....	151		
12 p. m.	.....	131		
1	.....	87	0	
1:03	Insulin, 28 units			
1:25–1:45	Luncheon: carbohydrate, 91; protein, 29; fat, 23.5			
2	.....	118		
2:30	.....	...	0	
3	.....	218		
4	.....	196		
5	.....	130		
6	.....	78	0	
6:03	Insulin, 32 units			
6:15–6:50	Dinner: carbohydrate, 77; protein, 27.5; fat, 28.6			
7	.....	178	0	
8	.....	78		
9	.....	46		
9:25	.....	...	..	Prodromes of reaction
9:35	.....	43 (5 Gm. sucrose)		Mild hypoglycemic symptoms; patient fully conscious
9:45	.....	40 (5 Gm. sucrose)		
10	.....	80	..	Symptom free
10:40	.....	52	..	Symptom free
10:55	.....	39 (Folin-Wu)		Symptom free
10:55	.....	40		
11:04	.....	..	0	Patient uneasy and asking for sugar
11:05	.....	..	..	5 Gm. dextrose
11:10	.....	..	..	5 Gm. dextrose
11:15	.....	..	..	Symptom free
11:35	.....	..	..	Retired for night
12 a. m.	.....	42	..	Awake; symptom free
1	.....	50	..	Sleeping
2	.....	45	..	Sleeping
2	.....	49 (Folin-Wu)		
3	.....	51	..	Sleeping
4	.....	56	..	Awake; symptom free
5	.....	71	..	Sleeping
6	.....	92		
7	.....	114	0	Night specimen
7:25	Insulin, 24 units	...	..	Arose and dressed
7:40–8:05	Breakfast: carbohydrate, 22; protein, 16; fat, 18			
8:20	.....	169	0	

Dog 2 was studied four days, and dog 3, ten days after operation. The two animals received the same insulin dosage (40 units), following a fast of eighteen hours. Dog 3 did not show any symptoms at all, being able to walk about throughout

the entire period of the experiment. Dog 2 had convulsions at the point indicated on the chart, with prompt recovery following sugar administration. The marked similarity of these curves to that shown in chart 1 is apparent.

COMMENT

The diabetic patient who offers difficulties in the regulation of insulin dosage is at present one of the most annoying problems with which the physician has to contend in treating the disease. There are many patients, particularly children and young adults, who do not seem to show any middle ground between glycosuria and insulin reactions. Such a patient may go along for varying periods of time apparently in perfect balance, until some slight, almost negligible, change in the routine occurs and a reaction is precipitated. This seems especially true in cases in which supplementary insulin is administered at noon and at bedtime.

As a result of blood sugar studies continued over a number of hours in cases of this type, we have found that distinctly hypoglycemic values may last for long periods without either patient or observer being aware of it. This phenomenon seems to offer an explanation of some of the difficulties experienced clinically in balancing insulin dosage. Once the patient's urine has become sugar free, the blood sugar may vary from 170 to 50 mg. per hundred cubic centimeters without any one being the wiser. There is considerable evidence accumulating to show that certain persons may have very low blood sugars on occasion without the slightest sign or symptom manifesting itself, as noted in our review of the literature. We have attempted to point out that this may represent not necessarily a transient low point but part of a phenomenon which can exist for hours without being recognized. For those patients who remain hypoglycemic over long periods without symptoms, the danger of sudden or unusual exertion or delays in food intake is very great. Severe seizures may occur without warning. It is easy to imagine the seriousness of the consequences should an individual like patient 2 have undertaken to go swimming or even to drive a motor car during the portion of the day while hypoglycemic but unaware of this condition.

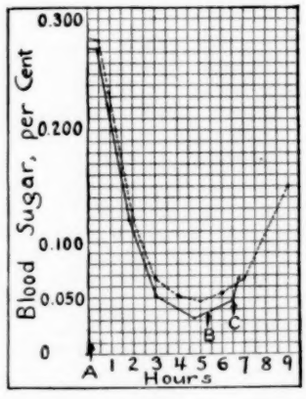

Chart 4.—Blood sugar curve in two totally depancreatinized dogs: *A*, 40 units of insulin; *B*, convulsion; *C*, dextrose, 10 Gm.; solid line, dog 2; broken line, dog 3.

Another interesting point brought out by the twenty-four hour blood sugar curves is that all meals do not alter the sugar level to the same extent. In case 2 the high point of the day was reached after breakfast, although the carbohydrate intake was the lowest for the three meals and the insulin dosage was higher than that given in the evening. Following the noon meal there was a relatively insignificant rise to a plateau which persisted for three hours. The evening insulin reduced the level to a hypoglycemia which persisted for nine hours. This result was in accord with the shape of the curves given by Jonas, Miller and Teller.[15] They found that a postprandial rise practically never occurred in diabetic persons receiving morning doses of insulin. In none of their patients did the blood sugar drop below normal levels, so that no information was obtained about prolonged hypoglycemia or insulin reactions.

It would appear that insulin reactions are of two types: One is brought about by excessive insulin dosage in which there is a sharp sudden fall with a relatively short period of hypoglycemia (case 3, and case 4 from 7 to 11 p. m.). The other type comes on at the end of a long period of hypoglycemia (cases 1 and 2). Morning reactions undoubtedly belong to the former category and are easily treated by reducing the insulin or increasing the carbohydrate allowance. Delayed reactions, such as are seen in the late afternoon or during the night, have been more mysterious and difficult to treat. These are in all probability due to the cumulative effects of repeated doses of insulin, so spaced as to prevent a repletion of the mobilizable stores of carbohydrate by food intake. The normal appearance of the patient at the time of the subsidiary dose is no criterion of his true state. This is well illustrated by cases 1 and 2. There is reason to suppose that cases of this type are more frequent than is realized at present.

The fact that all of the present blood sugar methods measure the *total* reducing substance of the blood, which includes nonfermentable material as well as dextrose, has not received much attention clinically. With the Folin-Wu method this nondextrose fraction amounts to approximately 20 mg. per hundred cubic centimeters. With some of the other methods it is still higher (e. g., Shaffer-Hartman, 27 mg.).[17] Since the nonfermentable residue is practically constant regardless of the level of the whole blood or of insulin administration,[1] it becomes more significant the lower the sugar level falls. Hence a value reported as 50 mg. represents actually only from 20 to 30 mg. of dextrose, depending on such factors as the method. Allowing for the nondextrose material on the very low values, it will be seen that at times the circulating dextrose must be almost nil.

Another source of error is encountered in instances in which reports are based on blood samples withdrawn during or after a convulsion. Cannon and his co-workers[18] have pointed out that convulsions serve as an additional defense mechanism called out by the sympathetic division of the autonomic system in response to low blood sugar levels. Macleod[5] has shown that the blood sugar invariably rises following a convulsive seizure, as can be shown by comparing the sugar values obtained before with those taken just after an attack. It is evident that a patient in convulsions will give a higher reading than that which was actually present at the time the attack was initiated. This factor has not been excluded in many of the reports of insulin reactions occurring at normal sugar levels or above.

In addition to its direct application, the phenomenon of prolonged hypoglycemia raises several problems which may be of more than academic interest. Is this condition harmful to the patient? The answer to this question is not at hand, since neither experimental nor clinical data are available. It might well be argued, however, that since the normal person possesses a mechanism for maintaining the blood sugar at a fairly constant level, it is no more logical to reduce the blood sugar in a diabetic person much below normal than it is to allow it to rise very far above it. Is there any good evidence to show that the liver itself is not in some way dependent on glycogen or dextrose for its

17. Somogyi, M.: Reducing Non Sugars and True Sugars in the Blood, J. Biol. Chem. **75**: 33 (Oct.) 1927.

18. Cannon, W. B.; McIver, M. A., and Bliss, S. W.: A Sympathetic and Adrenal Mechanism for Mobilizing Sugar in Hypoglycemia, Am. J. Physiol. **69**: 46 (June) 1924.

proper function? Continued depletion[19] of this store by overdosage with insulin might possibly lead to some serious hepatic injury. Finally, if the circulating dextrose is maintained at abnormally low levels throughout long periods each day, may it not lead eventually to an atrophy of disuse in the remaining islets of Langerhans? This is, of course, purely conjectural; yet it is tempting to reason by analogy that if continued high blood sugar overstrains the pancreas, continued low blood sugar may overrest it.

SUMMARY AND CONCLUSIONS

1. Experimental evidence shows that, following insulin administration, the blood sugar of diabetic patients and depancreatized dogs may remain at levels of 50 mg. per hundred cubic centimeters or below for from one to six hours without symptoms.

2. Such periods may or may not be followed by hypoglycemic reactions.

3. We believe that this phenomenon, whose dangers are evident, is probably frequent in occurrence; that it usually is unrecognized, and that it may account for the difficulty so often encountered in regulating the administration of insulin.

PERIODIC OPHTHALMIA IN SOLIPEDS AND ITS RELATION TO UVEITIS IN MAN*

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Periodic ophthalmia is a form of uveitis that is prevalent in horses. It has much in common with iridociliary inflammations in man. It is not usually associated with any marked symptoms of illness such as fever and malaise, more than is found in an ordinary attack of iritis in man. It is certainly not highly contagious; it runs its course in a few weeks, after which the eye may recover to outward appearances. Then a recurrence of the inflammatory process usually takes place which may appear from time to time through a period of months. On recovery the eye may not have disfiguring opacities or the result is often a dulled cornea, an opacified lens with posterior synechia, or such pathologic changes as may follow severe recurrent attacks of iritis or iridocyclitis in man. Recrudescence of the inflammation after recovery at intervals approximating a few weeks or a month probably accounts for the name "moon-blindness," by which the disease is commonly known. The disease is widespread, is as common in Europe as in America, and is one of the most serious diseases from which horses suffer, since the loss of sight, especially when bilateral, incapacitates them for service.

Periodic ophthalmia has been carefully studied by veterinarians for more than a century and a quarter, the first scientific description of the disease having appeared in France in 1807; since then many interesting papers on the subject have appeared. The disease finds no place in our ophthalmic textbooks. It is rather completely described in the American Encyclopedia of Ophthalmology; Dr. Casey Wood, the editor, acknowledges his indebtedness to the valuable article in the Encyclopédie française d'ophthalmologie and to the third edition of the Graefe-Saemisch-Hess Handbuch der gesamten Augenheilkunde (1913).

Periodic ophthalmia has special interest for ophthalmologists. It was the habit of veterinarians in the middle of the last century to destroy an eye so affected in a horse in order that the opposite eye might not become diseased; this led ophthalmologists in this country to adopt enucleation in sympathetic ophthalmia for the protection of the opposite eye.

The disease is far more common than is generally believed on farms where there are a few horses which are not especially valuable. Since the disease affects animals only it has not deeply interested ophthalmologists, although the ophthalmologists on the teaching staffs of veterinary schools have greatly increased the exactitude of the knowledge of its pathology. In the absence of exact knowledge as to its etiology, the treatment of the disease has been entirely empiric and has not proved to be satisfactory.

An epizootic which developed in a group of valuable polo ponies on a farm near the western shore of Lake Erie brought forcibly to our attention not only the great significance of the disease from the standpoint of the veterinarian but its close relationship to forms of uveitis that are constantly observed by the ophthalmologist, and suggested that the study of the disease as manifested in the horse might throw light on the treatment of uveal diseases in man. We shall not attempt to make a comprehensive survey of the work that has been done on the etiology or epidemiology of the disease, but shall content ourselves by reporting the more important facts regarding the epizootic which aroused our interest and by summarizing the results of bacteriologic studies of this and smaller outbreaks.

The ponies on this farm had been kept according to the most approved methods of housing and feeding. Their food was that which had been used on the farm for a number of years, and the conditions of their care had not been changed. About six weeks previous to our examination, several of the horses in one of the large stables in which the mares and foals were kept were attacked with an irritation of the eyes which the stable manager thought might be due to slight injury. Shortly afterward, some of the other animals became affected in a like manner, and within five months twenty-five of seventy-five horses had the disease. During this time the disease was seen in all of its various stages in the different animals, so it may suffice to give its general indications.

The attack usually begins with weakness and watering of the eye, photophobia, swelling of the lids and drooping of the upper lid if the animal approaches the light. The eye is injected and the pupil tends to be contracted. The conjunctiva gradually becomes highly injected, at times even slightly edematous. The discharge from the lids usually remains watery during the course of the disease. The cornea may present a dull, grayish luster and even appear quite milky. This will be found to be due, under illumination, to flocculent wavelike opacities which more or less completely fill the anterior chamber. There is a tendency for the pupil to contract, but in view of the fact that atropine had been administered in most of these cases, the tendency was not pronounced. The animal often shows evidence

19. C. F. and Gerty T. Cori (J. Biol. Chem. 76: 755 [March] 1928) have compared the metabolism of dextrose (administered by way of the alimentary tract) in normal rats and in those which have received moderate doses of insulin. When insulin in excess of that supplied by the rat's own body is available, the utilization of absorbed sugar by the peripheral tissues is so increased that almost none is left for glycogen deposition in the liver.

* Read before the Section on Ophthalmology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

of pain, although the tolerance and endurance of the horse to suffering are extraordinary. Most of the horses exhibited a little general depression, sluggishness and a slight rise of temperature during the height of recurrent attacks.

Since the eye of the horse is hyperopic, it is easily examined under ordinary conditions. With a snaffle on the upper lip of a horse he may be held quiet in a dark stall while the light from the electric ophthalmoscope is directed into the pupil and the interior structures illuminated as in the human subject. The large pupil makes this easier than might be expected. In the case of a highly nervous animal, sudden motions are always to be expected. It will, of course, be borne in mind that one of the anatomic peculiarities of the horse is the large pigmented mass (pigmentum nigrum) growing from the upper edge of the pupillary margin and projecting into the anterior chamber.

During this epizootic, practically all phases of the disease which have been described in the literature were noted. These phases may all be found following an uncontrolled attack of iridocyclitis in man. It should be remembered also that the ciliary muscle in the horse is rudimentary and therefore iritic inflammations into the structures back of the uvea sometimes occur. Subretinal effusions and consequent detachments are noted frequently.

During the six months or more in which the animals were under observation, three of them became entirely blind; two of these were destroyed, unfortunately, before the eyes could be secured. The third gave all the evidences of secondary glaucoma. This animal, a splendid mare and apparently well, was unable to find her stall or food trough and waited to be guided. All inflammatory symptoms had disappeared; the left eye showed many posterior synechias, attached to a cataractous lens, and the eye was of a woody hardness. In the right eye the cornea was clear, the pupil dilated, the vitreous relatively clear and the retina detached, as a result of a subretinal exudate and a cupped disk. High tension in this eye was noted when tested with the fingers.

One horse in which the disease was evidently in its incipience did not show photophobia, but a globular mass in the anterior chamber forming a crescent with its convex surface upward was probably due to beginning increased density in the aqueous. This horse subsequently passed through all the phases of periodic ophthalmia. All stages of uveitis were noted during the months that followed. Our space here will not permit the discussion of these stages in detail.

A characteristic condition was swelling and thickening of the iris with highly injected conjunctivae and flocculent opacities in the anterior chamber. In one case an exudate resembling a white cord extended from the margin of the pupil into the anterior chamber. One horse that had manifested little evidence of general distress was recovering from an attack of ophthalmia and had been ridden the day prior to the examination. He refused to cross a brook and a struggle of several minutes followed. When he reached the barn his eye was cherry red, and later the anterior chamber was found to be half filled with blood.

The study of all forms of diseases of the eye in the lower animals is of value because, allowing for certain anatomic and physiologic differences, the animals are subject to many of the diseases of the eye that affect man. Because of the readiness with which horses, dogs, rabbits, guinea-pigs and white rats may be studied we have usually employed these in our investigations of functional and infective processes. In periodic ophthalmia there is the exceptional, if not the unique, condition of a widespread disease, the almost entire effect of which is exerted on the uveal tract.

A careful study of this epizootic and of the conditions associated with it led to the conclusion that the disease, whatever its origin, must be endogenous. It might be influenced by surroundings because although all of these horses were kept under ideal conditions, without change of food or care, one phase existed that had been previously noted in connection with like manifestations of periodic ophthalmia. The farm was low lying and the previous summer and autumn had been one of extraordinary dampness. The affected horses were kept in a large, roomy stable with sawdust on the earth floor. The sawdust was damp, and from the heat of the horses damp emanations arose. None of the work horses kept in ordinary stables with wooden floors were affected. It has been noted in previous epizootics that the disease disappeared when the animals were taken to high ground. This was done as summer approached, but other animals continued to be attacked.

In order to obtain final and authoritative views on the nature of the disease, a letter of inquiry was sent to Dr. V. A. Moore, director of the New York State Veterinary College at Cornell University, as to what the latest teachings might be. The letter was referred to Dr. D. H. Udall. He said:

> I regret that we have little to offer as a cure of the disease. English veterinary literature contains little. Perhaps the best description printed in this country is in Veterinary Medicine, Law, volume 3, under "Recurrent Ophthalmia in Solipeds: Moon-Blindness." Europeans have investigated this affection thoroughly without reaching a decision in regard to the cause, and without finding any very effective remedy. Certain epidemics have been traced to fodder, but more often this cannot be done. It is quite apparent that it is due to an infection. Recently neoarsphenamine has been used, especially in the Mississippi Valley, where the trouble is more prevalent than here, but recent reports seem to indicate that it is not a success.

In a preliminary report of 1927, on periodic ophthalmia in the horse, W. F. Guard of Ames, Iowa, of the Department of Surgery of the State Agricultural College stated:

> This disease is widely distributed and has been studied more or less for at least fifty years. While some progress has been made concerning the knowledge we have of the symptoms, course and pathology of the disease, we still appear to be rather peacefully groping in the dark. We need only to read some of the recent papers on this subject to realize the seriousness of the condition, since the percentage of blindness from this source is estimated to range from 4 to 70 per cent of the horse population of various counties and districts reported.
>
> The cause of periodic ophthalmia is still unknown and even the relative importance of the so-called contributing factors or causes has not been given sufficient emphasis by the profession nor serious enough consideration by the breeders.

The technic of making the cultures and the details as to the experiments performed with the isolated organisms have been described.[1] Cultures have been made from fluids, exudates and emulsions of tissues of the eyes; from the blood of horses affected spontaneously with the disease or those in which it was induced experimentally; from the conjunctival sac of affected and normal horses, and from suspected feeds, such as hay, oats, corn and wheat, and from water.

1. Rosenow, E. C.: Bacteriologic Observations on Periodic Ophthalmia in Horses, J. Am. Vet. M. A. **71**: 378-383 (June) 1927. Bacteriologic Studies on the Etiology of Periodic Ophthalmia in the Horse, ibid. **72**: 419-458, 1928.

Two organisms have been isolated, a bacillus and a diplococcus, either manifesting affinity for the eye or producing filtrates that affected especially the eyes of animals. Of these, the bacillus is more significant. It is a rather slender, gram-negative, motile rod with rounded ends. It grows slowly aerobically on common culture mediums. On plain or dextrose agar and on plain horse-blood agar it produces medium-sized, glistening, translucent, nonadherent, yellow to orange colonies with smooth margins, and on potato, a spreading, confluent, yellow growth. In plain and dextrose broth it produces moderate diffuse clouding, most dense in the upper layer, and in older cultures a yellowish pellicle is formed. It does not produce change in litmus milk, liquefies gelatin slowly, does not digest Loeffler's blood-serum, does not form indol, ferments sugars slightly without production of gas, and reduces nitrates to nitrites. Its size and grouping vary considerably, depending on whether it is grown in liquid or in solid mediums. It usually stains diffusely, although polar staining and clear areas resembling spores occur in a few individual bacilli, especially in old cultures. On agar, the organism is uniform in size, ranging from 0.5 by 1.2 to 0.7 by 2.5 microns. Flagella have not been demonstrated. Only a small proportion of the organisms are found actively motile, even in young cultures. The bacillus is not acid-fast. It grows rather slowly at from 35 to 37 C., and somewhat more rapidly at room temperature; its optimal temperature for growth ranges between 25 and 30 C. According to Bergey's classification, the organism belongs to the genus *Flavobacterium* but it does not conform in all particulars to any of the numerous varieties described as peculiar to this genus.

Great difficulty has been experienced in isolating and maintaining the bacillus in pure culture. In cultures made by fishing well isolated colonies from plates containing only characteristic colonies, smears of which revealed only gram-negative bacilli and young subcultures of which proved to be pure, it has happened repeatedly that gram-positive or gram-negative, large or moderate-sized cocci or diplococci were found after the culture became old, especially if kept continuously in the incubator.

The various forms found in these cultures, especially the large gram-positive or gram-negative diplococci, resembled closely the organisms commonly grown in culture with the bacillus from swabbings of the conjunctival sac and from material obtained from within affected eyes.

RESULTS OF CULTURES OF MATERIAL FROM WITHIN AFFECTED EYES

The bacillus alone or together with the pleomorphic diplococcus was isolated consistently, both in the spontaneous or experimentally induced disease, from the fluid of the anterior chamber during the early part of acute attacks, less commonly as the symptoms were subsiding, and during quiescent intervals, and never after all evidences of infection had subsided and the eyesight was destroyed. The fluid was often sterile when emulsions of exudate and affected tissues yielded large numbers of colonies. The bacillus was isolated from the interior of spontaneously affected eyes of horses in different outbreaks occurring in four widely separated states. It was not isolated from the blood of spontaneously affected horses or from emulsions of tissues of shrunken eyes of horses that had been blind for a long time.

RESULTS OF CULTURES FROM THE CONJUNCTIVAL SAC

A summary of the results of cultures made from the conjunctival sac in inoculated horses is given in table 1. It will be seen that the incidence of isolation of the characteristic bacillus was lowest (7.5 per cent) from the eyes of normal horses in unaffected herds and somewhat higher (12 per cent) from the eyes of normal horses in affected herds. The total number of cases in which isolation of the characteristic bacillus was obtained in a group of 152 normal horses, representing

TABLE 1.—*Incidence of Isolation of Characteristic Bacillus from Conjunctival Sac in Horses*

Condition	Herds	Horses	Positive	
			No.	Per Cent
Normal horses:				
In unaffected herds	7	52	4	7.5
In affected herds	11	100	12	12
Total	18	152	16	10
Affected horses:				
With active ocular symptoms	7	27	19	70
With dormant ocular symptoms	8	33	11	30
Total	11	60	30	50

eighteen herds, was sixteen (about 10 per cent). This was in sharp contrast to the high incidence of its isolation from the eyes of affected horses. Of the sixty affected animals, representing eleven herds, cultures from thirty (50 per cent) yielded the organism. Cultures of the organism were obtained from nineteen (70 per cent) of the twenty-seven animals in which the eyes showed active symptoms, such as photophobia, lacrimation, congestion and swelling of the lids, whereas cultures were obtained from eleven (33 per cent) of the thirty-three animals affected in which the condition of the eyes was dormant at the time the culture was made. Cultures from swabbings of the conjunctival sac in the inoculated animals proved of interest. Swab cultures were made as a routine before injection and at intervals after injection. The characteristic bacillus

TABLE 2.—*Incidence of Isolation of Characteristic Bacillus from Feeds*

Source of Samples	Feeds	Samples Taken for Culture	Positive	
			No.	Per Cent
Uninfected farms (7)	Oats	11	2	18
	Hay	6		
	Water	5		
	Total	22	2	9
Infected farm (10)	Oats	14	8	57
	Hay	17	7	41
	Water	8	4	50
	Total	39	19	49

was not obtained in any before inoculation, or from affected eyes inoculated with sterile filtrates, whereas in animals inoculated with cultures of the bacillus or with fluids or emulsions of exudate or tissue from affected eyes, it was isolated in seventeen of forty-one cultures made.

RESULTS OF CULTURES FROM FEEDS

In order, if possible, to determine the source of this organism, cultures were made from different feeds, especially oats and hay, and from water. Poorly cured oat and pea hay were suspected as the source by the owner in one outbreak, poorly cured alfalfa hay in another, and moldy corn in a third. The bacillus was

isolated in large numbers from each of these feeds. A summary of the results of cultures made of feeds obtained from seven uninfected and ten infected farms is given in table 2. The total average incidence of isolation of the characteristic bacillus from samples of oats, hay and water, from farms where the disease did not exist, was 9 per cent, which is in sharp contrast with 49 per cent in farms where one or more horses were affected. Cultures from the feeds and water, besides showing the characteristic bacillus, often yielded cocci, diplococci and staphylococci.

In the outbreak in New York where thirty-three of seventy-five horses had become affected during four months previous to our study, many organisms were repeatedly isolated from two samples of oat and pea hay which was being fed when the epizootic began. It was obtained also from the water of two drinking-tubs, from one sample of shavings used in an open stall for bedding, and from the depths of the soil in the horse-yard, but not from the water directly from the well, from timothy hay, from grass and water in the pasture, from buckwheat straw, or from freshly opened bales of shavings. The bacillus was isolated in large numbers from oat and linseed cake, from the hay and from carrots, and in small numbers from the bran that was fed the previous autumn to supplement the pasture ration during the time when typical attacks developed in a number of animals among the pasture herd and in which attacks had not occurred during the summer. Large numbers were again isolated from the hay and oats in February, while the disease continued to recur. The typical ocular reaction developed in a rabbit that was injected with washings of this heavily infected oats, and the animal died within twenty-four hours. The organism was recovered in pure culture from the eyes, blood and liver. A control injection with washings from oats free from the organism was without effect.

From a farm in Wisconsin where one of a herd of ten horses had contracted the disease a month before our study, the organism was isolated from both eyes of the affected animal, from one eye of the normal team-mate and in large numbers from all of three samples of old oats, from one sample of ground oat feed, and from one of two samples of water obtained from the shaded side of the water-trough. It was not obtained from the eyes of the remaining eight normal horses nor from the hay, wheat, new oats and grass in the pasture. Cultures made on the same day from these feeds from four nearby farms where the disease had not occurred did not show the organism.

ANIMAL EXPERIMENTS

The clue which led to the isolation of the peculiar bacillus was obtained by the intravenous injection of three rabits with mixed cultures from the conjunctival sac of three horses. One of the rabbits remained well. The other two died, and from the blood and fluid in the anterior chamber of the eyes pure cultures were obtained. This method has since led to the isolation of the bacillus many times. The living organism not only has an affinity for the eye but it produces an extremely potent toxin which, aside from general toxicity, affects especially the ocular structures of the horse, rabbit, guinea-pig and white rat following intravenous injection. The rabbits, especially, manifest characteristic symptoms. Soon after the intravenous injection of 0.2 cc. of broth culture or filtrate for each 100 Gm. of body weight, the animal becomes prostrated, manifesting increased respiratory rate and weakness of the extremities, often associated with fine tremor of the muscles, especially on exertion, and coincidentally there is congestion of the vessels of the palpebral conjunctiva and of the iris, especially of the circumcorneal vessels, accompanied by a variable degree of lacrimation. If the animal succumbs after the injection, either of living cultures or of filtrates, death usually occurs within forty-eight hours, more often within twenty-four hours; the congestion of the eyes continues until death. If the animal recovers, the symptoms usually reach their maximal intensity in from six to twelve hours and disappear completely in from two to four days following injection of cultures and within one or two days following injection of filtrates. The blood was never heavily seeded in the animals that died.

Intra-ocular injections of 0.5 cc. of culture or filtrate into rabbits, under ether anesthesia, have been found to induce a condition that resembles closely that noted in acute spontaneous attacks in horses, except that resolution with complete recovery of the eye ensues in from one to four weeks, depending on the size of the dose and the virulence of the strain injected. Filtrates cause a similar acute reaction, manifested by extreme congestion, lacrimation, clouding of the aqueous humor and formation of a membranous exudate in the anterior chamber; as a result there is temporary loss of vision, but recovery occurs more quickly than following injection of cultures. The toxin in both its general and its specific effect on the eye is very stable. It does not deteriorate noticeably when preserved for many weeks in the ice-chest or at room temperature. Heating to 60 C. for two hours does not reduce its toxicity, and boiling reduces it only slightly. Autoclaving cultures for as long as two hours, followed by filtering, does not destroy the toxicity completely, although it reduces it markedly.

Control injections of a like amount of sodium chloride solution, of sterile broth, and of cultures and filtrates of other organisms isolated from affected animals were made intravenously and intra-ocularly in rabbits and intra-ocularly in horses. Reactions were absent or slight. Diluted cultures and filtrates of staphylococci, diphtheroid bacilli and colon bacilli, which were sometimes isolated, did not manifest specificity for the eye. Cultures and filtrates of the gram-positive or gram-negative diplococcus showed repeatedly the characteristic bacillus, and sometimes, when isolated in pure culture from the eyes of affected horses, had moderate affinity for the eyes of rabbits when injected intravenously. When injected in approximately five times the dosage of bacilli used, the diplococcus produced congestion similar to but milder than that which followed injection of cultures or filtrates of the bacillus. Constitutional symptoms were nearly always absent and congestion of the vessels of the eye lasted usually only a few hours. The effects of intra-ocular injection in horses and in rabbits were also less pronounced and recovery occurred more promptly.

The horse has been found to be extremely susceptible to the organism in young cultures and to sterile filtrates of old cultures of the bacillus; 0.3 cc. of the culture for each kilogram of weight injected intravenously has proved fatal within a few hours in one horse and in twenty-four hours in another, the organism being isolated in pure culture but in small numbers from the blood and the fluid from the anterior chamber in both. In the horse that lived for twenty-four hours, severe circumcorneal congestion and lacrimation developed and a hemorrhagic area appeared in the iris of one eye.

The injection of 4 cc. of filtrate used for immunization, 2 cc. intracutaneously, and 2 cc. subcutaneously, often causes general and local symptoms in horses weighing 600 Kg. or more. Within from a half to one hour, about half of the animals manifested signs of intoxication by resting first one hind foot and then the other, by lying down and by moderately increased and sighing respiration, while in a smaller number congestion of the vessels of the eyes appeared, especially those of the lids and those surrounding the cornea.

The early symptoms have been reproduced in the horse by inoculating pure cultures of the bacillus, undiluted and diluted as high as 1:1,000 with sodium chloride solution, isolated from the fluid or exudate of affected eyes, from swabbings of the conjunctival sac in normal and affected horses, and from feeds and water. This has been accomplished with the bacillus after as many as ten subcultures, each successive culture being made from a single colony. The organism has been passed successively through four horses by intra-ocular inoculation, producing characteristic early symptoms in each instance. Sections of the tissues of the eyes removed from several horses which were affected spontaneously, and of eyes of horses in which the disease has been reproduced experimentally, have been studied microscopically. Congestion of vessels, edema and leukocytic infiltration were most pronounced in the uveal tract, the iris, the ciliary body and in the region of the limbus. The lesions in the two conditions were similar, although those of the experimental disease were usually more pronounced. In the choroid coat and in the cornea, milder changes were noted, consisting of localized areas of hemorrhagic or leukocytic infiltration. The optic nerve and the retina were free from infiltration. It has been difficult to find bacteria, especially in lesions of eyes affected spontaneously, but prolonged search has revealed unmistakable diplococci, sometimes in short chains and clumps, and bacilli morphologically like those obtained in cultures, alone or together with ccoci or diplococci in the same field.

The course of the disease, as it often occurs spontaneously, has been closely simulated in two horses, one inoculated directly with an emulsion of the exudate of an acutely affected eye proved to contain the bacillus, the other with a pure culture. In both horses recurring attacks of exacerbations and remissions occurred at intervals over a period of eight months until vision was completely destroyed and the eyeballs became shrunken. In one of these the opposite eye became affected. The bacillus alone or together with the diplococcus was isolated repeatedly from the fluid of the eyes during exacerbations, but not during quiescent intervals, nor after inflammation had permanently subsided. Cultures from emulsions of the scarred tissues after the animals were killed were also negative. The serum of spontaneously acutely affected horses in different outbreaks, and of horses in which the disease was induced experimentally, has been found to agglutinate consistently freshly isolated strains of the bacillus, and less often and less definitely the diplococcus isolated in periodic ophthalmia, and also the streptococcus commonly isolated from foci of infection in cases of iritis in man, and which manifests affinity for ocular structures.[2]

The serums of rabbits injected intravenously with filtrates and the dead cultures of the bacillus developed specific agglutinating power. General and ocular immunity, both to intravenous and to intra-ocular injection of cultures and filtrates of the bacillus, have been induced in rabbits by repeated intravenous injection and by repeated introduction into the stomach of filtrates or killed cultures of the bacillus.

The intracutaneous and subcutaneous injections of filtrates or killed bacterial suspensions in horses appear to be effective in preventing the disease in unaffected animals and in diminishing the number and severity of attacks in those already affected. The serums of two horses that had been immunized with increasing doses of a highly toxic filtrate, or cultures of the bacillus, have exhibited moderate neutralizing or antitoxic power, effective in the rabbit against both living cultures and sterile filtrates.

The various strains of the bacillus isolated from the eyes of horses and from suspected feeds, in widely separated outbreaks, are much alike morphologically and culturally in their toxin-producing power and in their behavior toward agglutinating serums of affected or artificially immunized animals. Absorption of agglutinins with one strain removes them for others.

The significance of the diplococcus often associated with the bacillus is not entirely clear. It appears to be a mutation, and since cultures injected intravenously in rabbits cause congestion of the eyes, and diluted cultures a condition in the eyes of horses simulating the disease, and since it is agglutinated by the serum of affected horses, it is at least not a harmless secondary invader or evidence of contamination.

The conclusion that the bacillus isolated has etiologic significance in periodic ophthalmia seems warranted, and the name *Flavobacterium ophthalmiae* would seem appropriate. The infection in the eye appears to be hematogenous, the portal of entry the alimentary tract, and the source of the organism various feeds and water.

ABSTRACT OF DISCUSSION

DR. S. R. GIFFORD, Omaha: The report of the organism found is interesting; from my review of the literature, the work of Drs. Rosenow and Lewis seems the most systematic attempt to fulfil scientific requirements for proof of a causal relationship. Their success in reproducing the disease, demonstrating agglutinins for the organism in the blood of diseased and inoculated animals, immunization of animals, and production of an effective antitoxic serum places their report in a class by itself when compared to the evidence offered by other observers. Several other authors have isolated organisms in the disease, which they have considered of etiologic importance. Dr. Rosenow has mentioned elsewhere the bacillus isolated by Dalling from the nerve, which he states differs essentially from his organism, as does the bacillus isolated by Bonazzi and Merillat, with which they claimed to have reproduced the disease in horses. The bacillus isolated from the aqueous by Fox from two horses was gram-positive, and was not obtained in pure culture. Jorgenson, in Michigan, found an interesting organism in smears and cultures of the aqueous in four out of eight affected horses. It was a gram-negative, nonmotile diplobacillus, which liquified blood serum, and which he considered identical with the Morax-Axenfeld bacillus. Horses were not used for inoculations, but one rabbit developed a panophthalmitis after injection of a culture. Dor, according to Kalt, found an intracellular diplococcus which apparently showed mutation to a bacillus, with which the disease could be reproduced. The organism which most resembles that described by Dr. Rosenow is a gram-negative bacillus described by Clin, isolated from the aqueous, showing the clubbed ends and vacuolated protoplasm described by Dr. Rosenow, and reproducing the disease on isola-

2. Benedict, W. L.: The Character of Iritis Caused by Focal Infection, Arch. Ophth. **1**: 560-568 (Nov.) 1921. Haden, R. L.: Elective Localization in the Eye of Bacteria from Infected Teeth, Arch. Int. Med. **32**: 829-849 (Dec.) 1923. Nickel, A. C.: The Localization in Animals of Bacteria Isolated from Foci of Infection, J. A. M. A. **87**: 1117-1122 (Oct. 2) 1926. Rosenow, E. C.: Iritis and Other Ocular Lesions on Intravenous Injection of Streptococci, J. Infect. Dis. **17**: 403-408, 1915.

tion. Clin considered it a member of the colon bacillus group, which would place it near Dr. Rosenow's organism, although the latter, by its absence of gas formation and presence of motility, would fall rather into the typhoid-enteriditis group. The fact that so many organisms have been found in this disease, while other observers, such as Post, obtained negative results for bacteria, while reproducing the disease with inoculation of tissues, suggests the possibility that some other etiologic agent, possibly ultramicroscopic, may be the primary cause, the various organisms described being secondary invaders. As is well known, this may be true of the so-called influenza bacillus in its relation to influenza, and it is undoubtedly true of the organisms occasionally found in sympathetic ophthalmia.

About the treatment of the disease, there is little to be said. The only reporters who showed any enthusiasm for any method of treatment were Fox, who used 20 grains (1.3 Gm.) of quinine a day, Newsom, who advised injections of from 1 to 4 cc. of compound solution of iodine in the supra-orbital fat, and Siegfried, who used autohemotherapy. Sodium salicylate has also been given. Atropine should always be given. According to most observers, treatment is of little effect. It is quite possible that Dr. Rosenow's serum may prove of the greatest value in the treatment of this disease. Further reports of bacteriologic observations in this disease, and of the results of treatment with the serum, should be awaited with interest by ophthalmologists, as they undoubtedly will be by veterinarians.

DR. E. V. L. BROWN, Chicago: Numerous observations in this article coincide with what is known of the pathogenesis of iritis in man, as, for instance, that no bacteria are found in the blood of animals suffering with early spontaneous iritis although the aqueous regularly contains the bacillus. To me this has always been the weakest link in the chain between the supposed portal and the iris in man; there is no proved bacteremia. Another weak link is that the organisms are difficult to find after the early stage either in the aqueous or in the iris. On the other hand, there are numerous differences between the ordinary iritis found in these horses and fibroplastic iritis in man. In the horses keratitis and cataract developed in a large percentage of the cases; the iritis was not associated with arthritis and the portal of entry was quite evidently the gastro-intestinal tract. The condition in the horses would seem to be more like that occasionally seen in man in acute encephalitis. Despite these differences the work does for the first time in my opinion clearly indicate that the gastro-intestinal tract is a true portal of entry, although the infection was not shown to have produced any acute or chronic change in the gastro-intestinal tract. However, this is far from proof that iritis in man is due to gastro-intestinal autointoxication. Possibly the authors can add something further on the condition found in the gastro-intestinal tract of the horses. I should like to call attention to an excellent article on the clinical and pathologic observations in cases of iritis, cyclitis and iridocyclitis in horses by Heinrich Jacob of Utrecht in the section on general pathology and pathologic anatomy of the eye in man and the lower animals in the Lubarsch-Ostertag-Frei 1927 series (Ergebnisse der allgemeinen Pathologie und pathologischen Anatomie des Menschen und des Tiers, eye supplement, part 1, 1913-1925, Munich, J. F. Bergmann, 1927) which has reached this country since the authors' article was written.

DR. F. H. VERHOEFF, Boston: The evidence presented by the authors seems to me far from conclusive. The frequency with which the bacillus was found in the conjunctival sacs of normal horses in unaffected herds, and its frequent association with cocci, strongly suggest that cultures supposed to have been obtained from the interior of the affected eyes were really contaminations. The fact that the bacillus was more frequently found in the conjunctival sacs of affected horses is not necessarily of any significance in regard to the uveitis. The xerosis bacillus likewise occurs more frequently and in greater abundance in the conjunctival sacs of inflamed than in normal human eyes, yet it does not have any pathologic significance. The description of the histologic changes found by the authors is too meager for the reader to interpret. It is stated that it was difficult to find bacteria, especially in the lesions of the eyes affected spontaneously. In my experience it has been practically impossible to identify small gram-negative bacilli in sections of tissues, if the organisms are scantily present. No statement is made as to whether or not the organisms were found in smears made from intra-ocular exudates or conjunctival secretions. It is stated that the serum of affected horses agglutinated freshly isolated strains of the bacillus. The possible importance of this seems to be completely nullified by the further statement that the serum also agglutinated certain streptococci. While numerous experiments on animals were evidently made, only two seem to have any significance in regard to the uveitis of horses, for in only two horses was the course of the disease, as it occurs spontaneously, closely simulated. One of these horses was inoculated with an emulsion of the exudate of an acutely affected eye proved to contain the bacillus. This animal may be excluded from consideration, because the exudate must have contained the true cause of the disease whether or not it contained the bacillus in question. The other horse was injected (intra-ocularly?) with a pure culture of the bacillus. It is stated that the opposite eye became affected in one of the animals, but which animal is left to the reader's imagination. In the last analysis, the proof that the bacillus isolated by the authors is the cause of the periodic ophthalmia of horses rests on one lone horse, and this would seem to be too great a burden for any one animal to bear.

DR. LLOYD MILLS, Los Angeles: Two years ago in a paper on chronic iritis as distinguished from acute iritis, read before this section, I drew attention to the similarity in the clinical symptoms and in the ocular picture between periodic ophthalmia in horses and these chronic blinding cases of iritis in man. I am happy that the possibility of an intestinal relationship in these cases is at last being admitted. I should like to ask the authors, in case an examination was made of the intestines of these animals, what were the local lesions found there. In patients with chronic iritis going on to blindness, I have found chronic ulcerative colitis, and ileocecal bands, and I often found by x-ray study that there is a definite intestinal background. It would be important if eyes enucleated under these conditions could be examined by the authors to demonstrate any possible relationship between this chronic form of human iritis and the periodic ophthalmia of horses.

DR. LAURA LANE, Baltimore: This study of Drs. Lewis and Rosenow is very interesting. I believe that there is a predisposing etiologic factor which they have not brought out, namely, the lack of vitamin D. Steenbock and Barlow of the University of Wisconsin have shown that lack of vitamin D causes corneal changes and impairment of vision, and favors conjunctivitis and infection of the mucous membranes. A buphthalmos-like condition finally develops. Steenbock has shown that hay gathered after a rain does not have any vitamin D. Oats do not contain vitamin D unless they have been irradiated. There had been a wet season at the farm where this outbreak occurred. It is easy to see that horses, the food of which consists largely of hay and oats, might in certain wet seasons develop a condition of avitaminosis as a result of lack of vitamin D, and therefore be subject to the development of an eye condition similar to the one described by the writers. This subject presented by the authors, including the recent work of Steenbock and Barlow and others, is of considerable importance to ophthalmologists.

DR. E. C. ROSENOW, Rochester, Minn.: Aside from the structures involved there is no histologically distinct lesion in periodic ophthalmia. The character of the infiltration in the uveal tract, iris and other structures varies within wide limits and depends on the duration and severity of the attack. The lesions induced experimentally resembled those of the spontaneous disease in all essential respects. The bacillus and diplococcus isolated from the interior of acutely affected eyes were not contaminations, for they were successfully demonstrated in the lesions in sections and in smears from the fluid and emulsions of exudate aspirated from the eye of a new spontaneously affected horse. I am fully aware of the difficulty in identifying gram-negative bacilli in tissues as emphasized by Dr. Verhoeff. All I can say is that there is no reasonable doubt of their identity. The agglutinating experiments with the serum of spontaneously affected horses and of those in which the disease was induced experimentally were so sufficiently controlled, marked and specific as to be of significance. The fact that the

serum of some animals agglutinates, in addition to the bacillus, the diplococcus isolated from the interior of some actively affected eyes and in several instances a streptococcus isolated from foci of infection in cases of iritis or iridocyclitis in man and whch has selective affinity for the eyes of animals, should not be interpreted as evidence against these organisms having etiologic significance as Dr. Vehoeff would have it, for it is only these eye strains and not streptococci in general that are agglutinated. In order to rid Dr. Verhoeff of anxiety regarding the significance and perhaps insufficiently detailed description of the events in the two horses in which the experimentally induced disease was allowed to run its course, I should emphasize the fact that since the completion of the paper as published in the presessional volume, I have had opportunity to obtain the eyes of another horse killed on the third day of the third attack in the right eye. From this acutely affected eye the bacillus has again been isolated and has produced the typical early symptoms following injection in the vitreous of dilutions of cultures as high as 1:1,000,000 through two animal passages and after six platings each from a single colony. In one animal slight but undoubted symptoms lasting for two days have already occurred in the uninoculated eye.

HEALTH SUPERVISION OF EXECUTIVES IN INDUSTRY*

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Nine years ago, the president of the Dennison Manufacturing Company decided that the time had arrived to institute some form of health supervision for executives. Practically everything in a factory is inspected and examined at regular intervals to prevent waste and to maintain the physical equipment of the plant at the highest possible state of efficiency. So why not examine the executives of the company at least once or twice a year to help them ward off disease, to advise them how to live, and to instruct them in the simple rules of hygiene? Executives are the key men of the industry and are directly responsible for the success or failure of the business. It seems only reasonable that one of the first considerations of any company should be the health and physical well being of its executives. Good health is recognized by all today as being one's greatest asset.

The personal physician of the president of the company was brought in to start this plan. He is a successful general practitioner of twenty-five years' experience and well fitted to start and carry out a plan of health supervision. This physician visited many different industries and other institutions throughout the country where various types of health supervision were in force. From information gained on this trip and from his own experience, he worked out a plan of physical examinations and began the yearly examination of fifty of the major executives of the company. The examinations were all voluntary, and before the plan started the president called each executive to his office and explained the plan to him.

Two years later, the same plan was started with a group of eighty of the minor executives of the company (this group included department heads, chief clerks, some staff men, and foremen). This group is examined yearly by the full-time plant physician. The cooperation by both groups has been splendid. It is on the experience of supervising these two groups that this paper is based.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

There are, of course, other ways in which work of this kind can be started, but the foregoing plan seemed best suited to this particular plant. In smaller plants the factory physician might do all the examining of the executives, or, if no regular physician is in attendance, a local practicing physician can devote part of his time twice a year to the health examinations. The executives could go to their own physician's office, yet it will save time and be more satisfactory to all concerned to have the physician, whoever he may be, come to the factory during working hours to do this work.

Today many plants large and small provide some form of health supervision for their executives, and it seems to be generally agreed that health examinations are very much worth while; several of the past presidents of the American Medical Association have strongly advocated the health examination as a forward step in preventive medicine.

THE PLAN

The major executives to be examined are selected by the directors. A list of these men is given to the examining physician, whose office is conveniently located in the administration building. Examinations are given twice a year and appointments are made by the physician, who calls each executive by telephone and arranges with him for the semiannual examination.

The minor executives are selected by the division managers and are examined once a year by the full-time plant physician. The factory clinic clerk sends a notice to each man when his examination date falls due and makes an appointment for him.

One hour and fifteen minutes is allotted for each examination. It is important that these examinations should be as free from interruption as possible. The executives have all been notified of their appointment two or more days in advance and have had an opportunity to think over any points on which they wish information.

The examination records are kept on file from year to year, and as the physician examines each man he has complete records before him for comparison and reference.

THE EXAMINATION

The examination with its questionnaire as to diet, living habits, exercise and recreation is only a part of the general scheme in keeping the executives fit. However, it is the basis for health supervision in any plan.

The physical examination is a fairly complete one; the examination form used varies only in detail from year to year as circumstances and conditions suggest. It is similar to many of the health examination forms which others use, and to the forms suggested by the different medical societies.

The basic requirements for the successful carrying on of health examinations are well stated by Lee,[1] namely:

1. A permanent record.
2. Ample time for examination.
3. A careful study of the individual case.
4. Examination of the patient without clothing.
5. A thorough review of the history and physical examination.
6. Careful and explicit advice to each individual patient with adequate appreciation that organic soundness is often associated with marked functional disturbances.
7. Utilization of the interval after the examination for instruction in the simple rules of hygiene.

1. Lee, R. I.: Boston M. & S. J. **196**: 559 (April 7) 1927.

We have followed these requirements and have found them to be satisfactory for our purposes.

In examining a group of men of this type who are really "healthy" men (as the word healthy is commonly used), one does not find very much organic disease but does find functional derangements caused by mental strain, worry, improper living, and by neglect of the simple rules of hygiene. One finds certain minor defects, some of them easily corrected and others which can be partially corrected, such as carious teeth, defective vision or improperly corrected vision, underweight, overweight, infected tonsils, and chronic sinus trouble. One also finds such things as errors of diet, lack of exercise and recreation, lack of sleep, constipation, and other errors in habits of living. The questionnaire on diet, exercise, recreation and the like is of as much importance as the physical examination so far as the patient is concerned. We have found it possible to get the patient to correct at least one physical defect, or one error in living habits each year. Complete urinalysis is done for all men at each examination.

The variations in normal conditions were from the first a source of worry. However, recent records of health examinations elsewhere have borne out our experience that there is no one pattern which can be attached to all patients to determine physical fitness or unfitness. Often conditions, present at one examination, have not been detectable at the next. So we have come to feel that conditions of the greatest importance are those which are always present.

TABLE 1.—*Major Defects Found at First Examination*

Condition	Number
Arrested tuberculosis	2
Heart lesions	4
Varicocele	2
Varicosities	3
Chronic eczema	2
Psoriasis	2
Alopecia areata	3
Marked phimosis	1
Hemorrhoids	2
Undescended testis	1
Chronic colitis	1
Greatly enlarged lymph glands	1
Hernias	3

PHYSICAL CONDITIONS

In the minor executive group of eighty men, the conditions given in table 1, which might be considered major defects, were discovered at the time of the first examination.

Some of these major defects or ailments have been corrected or cured, namely: two cases of alopecia, one case of hemorrhoids, one of colitis, and three cases of hernia—two in which trusses were applied and one in which operation was performed. The patients were all advised to see their family physicians for treatment of these defects when treatment was logically indicated.

In this group the following defects, considered minor and for the most part easily correctable, were discovered: underweight and overweight; defective vision; otitis media and defective hearing; carious teeth; infected tonsils; low or high blood pressure; corns, poor arches, calluses and bunions; correctable postural defects.

The figures show that more than 33 per cent of these minor defects were well corrected. For both groups examined there has been marked improvement in 60 per cent of the minor defects. That is, more than 60 per cent of the men examined have done something toward correcting their defects. We have been careful not to offend these men, when checking results, and have not used even gentle compulsion in urging that defects be corrected. We prefer that they follow our advice after logical reasons have been given them as to the need of trying to correct the defects found. Other correctable defects have been found, but those mentioned are the most common.

TABLE 2.—*Minor Defects*

	Minor Correctable Defects, First Examination, Number	Minor Defects Corrected, 1928 Examination, Number
Overweight and underweight	36	12
Vision	14	8
Otitis media and defective hearing	11	3
Teeth	25	15
Tonsils	19	5
Blood pressure: below 110, above 140	27	11
Foot defects	11	5
Postural defects	18	3
Total	161	62

LOST TIME ON ACCOUNT OF ILLNESS

In the year 1924, a check up on the amount of lost time on account of illness was made on this group of men. In that year ninety-one men lost an average of three and one-sixth days. In 1925, the eighty-eight men examined lost an average of two and seven-eighths days. In 1926, ninety-one men lost a little less than two days average. In 1927, eighty men lost an average of two and one-seventh days on account of illness. The figures have also shown that the men who have been in the group the longest have averaged the least lost time for illness. Whether this means anything or whether it is due to health examinations we cannot say; nevertheless, it is significant and worth calling attention to.

Twelve men from both groups have shown traces of albumin and sugar in the urine at various times. These patients have been checked frequently over a period of years, and the traces of albumin and sugar in the urine seem to have very little significance. In any group of men these urinary conditions will probably be discovered, but unless other symptoms and lesions are demonstrable, these conditions do not mean much, except that the patients should be checked carefully at each examination, for traces of albumin and sugar are found in many urines and are quite compatible with normal health.

TABLE 3.—*Common Faulty Habits of Living*

First Examination	1928 Examination
Errors in diet 60	More than 50 per cent of these errors in living habits have been corrected.
Smoked excessively 16	
No exercise during winter 40	
Insufficient rest and sleep 12	
Had chronic constipation 18	

DIET, SMOKING, EXERCISE, REST AND CONSTIPATION

Faulty habits of life, for the most part, have to do with diet, smoking, exercise, rest or constipation. The results of a comparison of the first and latest examinations of eighty men who have been examined at least twice are given in table 3.

One of the important results of health examinations in industry is the point of contact established which allows the examining physician to give advice on personal hygiene, diet, exercise and other health needs,

OTHER MEASURES FOR HEALTH PRESERVATION AND DISEASE PREVENTION

Major executives receive three weeks' vacation annually with salary; the directors of the company have one month in the summer with a winter vacation of one or two weeks, depending on their physical condition. More than half of the major group have an extra half day off each week for whatever diversion they wish. This is, of course, in addition to the Saturday half holiday. The majority play golf. Additional vacations are given to men whom we find to be in a run down condition or who may be on the "ragged edge" and need mostly a change of scene. In other instances, working hours are adjusted for individuals from time to time. When members of these groups have been out with an illness, they report to the physician for a check up, principally to see that they do not return to work too quickly. If necessary, they are given short working hours for a period.

The majority of the men who have defective vision have had their eyes examined by reputable oculists. When the examinations first started, many were wearing glasses prescribed by optometrists and opticians. A majority have had complete x-ray examinations of the teeth and, whenever indicated, x-ray and other special examinations have been made. These men are sent to special clinics and specialists and to their family physicians whenever there are indications for such measures.

All major executives who travel throughout the United States and to foreign countries who had not been vaccinated against smallpox since childhood have been revaccinated. All men who travel to any extent have been inoculated against typhoid and paratyphoid fever. Salesmen going to foreign countries are also protected against these two diseases.

Various plans of treatment have been tried for the prevention of colds with some degree of success.

The one outstanding fact brought out in the health questionnaire was that more than 50 per cent of both groups took practically no exercise during the winter months. Two gymnasium classes were organized. For the major group, the class was held on "company hours" three times a week; for the other group, after factory hours. As time goes on, these classes have held more and more interest for both groups, until now about one half of each group attend regularly and enjoy volley ball for an hour. Competitive exercise seems to hold the interest of the men, while the "setting up" exercises alone failed almost entirely. For the men who do not care for the "gym," arrangements are being made for bowling three times a week. In this way we try to give the men exercise which they would not take of their own initiative, especially during the winter months. This exercise, followed by a hot and a cold shower, strengthens their resistance during the winter and helps to relieve the fatigue accumulated during the day.

Health examinations will not always be the means of discovering incipient disease, but they are probably the best means offered at the present time for the individual. The details of any plan for health supervision are relatively unimportant; the important factor is to start one. Details take care of themselves.

SUMMARY

1. Health supervision in industry must have the approval and support of the directors of the concern.

2. The examinations should preferably be on a voluntary basis, and done, if possible, at the factory on factory time.

3. From our experience the men like the health examination, give us their cooperation, follow advice given in regard to living habits and rules of hygiene, and correct a large percentage of minor and major physical defects.

4. Most business men have no recreational exercise during the winter. An indirect result of these examinations is that facilities for exercise have been provided on company time.

5. Men who travel have been protected against smallpox and typhoid.

6. We have attempted to cut down the number of colds and have met with a moderate degree of success. Colds, naturally, are the most common ailment and are responsible for the greatest amount of lost time and discomfort.

7. Adequate vacations and adjustment of hours must lead to better health and better thinking.

8. Men returning to work after illness are seen by the factory physician first. Through these means we feel that health supervision has shown enough worth-while results to justify its continuance.

ABSTRACT OF DISCUSSION

DR. V. S. CHENEY, Chicago: Executives are the hardest class of people to handle in an organization. They are accustomed to giving orders and not to taking them. I have found that more than 99 per cent of our executives are troubled with constipation. I have made more than 600 gastro-intestinal studies on our executives. In that number I found only one in whom the barium meal was eliminated within forty-eight hours. The maximum was 168 hours, a week, and still nearly all of these men say that they have regular bowel movements once or twice a day. They have; but they have simply a closed tube into which they are forcing food and it has to come out sooner or later. I have also found in our group that lack of exercise is the most prolific cause of disease or ill health in our executives. If we would take a picture of the executives who are over 40, and show them how they look in silhouette in the nude, I think it would impress them a little bit more than what we say to them. Their girth is anywhere from 6 to 8, sometimes even 10 inches more around the waist than it is around the chest. I tell them that they are physically lazy; they are, all of them, but they are not lazy mentally. They depend on about two days of golf to supply their physical needs. A man who has been physically active before the age of 40 needs that same activity, only in a lessened degree, after 40 if he wants to preserve his health. Exercise is just as essential to him then as it is when he is younger. We try to see our executives at least once a week personally. We go into their offices. We converse with them. If they have anything wrong, they consult us. In that way they sometimes ward off serious disease. I have in mind one of our vice presidents who had been under a severe nervous strain for weeks. He said that he had lost his pep. I found a blood pressure of 100 systolic and 60 diastolic. This man was below par because of inactivity of his thyroid and suprarenal glands. The metabolism test was —27. His condition was very easily rectified—two weeks' vacation, and a little thyroid-suprarenal extract put him back on the job. We try to have personal contact with our executives. I preach to them three things—posture, exercise and the wearing of suspenders. There are more big stomachs caused by the wearing of a belt than any other one thing I know of, because if one doesn't stick one's stomach out, something embarrassing is going to happen. I emphasize exercise—daily exercise—not getting out on the golf links and hitting the ball. That isn't exercise, that's a game; and a man who has muscles isn't satisfied with that. I tell them to do something so that the muscles of the arms and body will tingle, and to work up a sweat at least once a day. I am sorry to say that only a small percentage follow this advice. There is no real incentive for them to do so.

DR. H. G. MURRAY, Framingham, Mass.: I should like to stress one point, namely, exercise. We found that forty of the eighty men examined took no exercise during the winter months, so the company provided two gymnasium classes with a physical director to conduct them. For the first week or two these classes were very successful; then the interest dropped off. We substituted volley ball for the setting-up exercises, and at the present time we have more than fifty men who play volley ball three times a week. They really enjoy it, and get a fair amount of exercise. We believe that, in the summertime, these men get enough exercise themselves, but I wanted to emphasize that they are likely to get no exercise at all during the winter, and fall below normal physically as a result.

CISTERNAL AND LUMBAR PUNCTURE

A COMPARATIVE STUDY OF THE FLUIDS IN SYPHILIS *

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It has been shown by numerous observers, including Nonne,[1] Baumann,[2] Memmesheimer,[3] Hartwich[4] and Spiegel,[5] that cisternal puncture has distinct advantages over lumbar puncture, and that when the technic is once acquired the observer will not return to lumbar puncture as a routine test.

The biologic reactions in the fluid, according to Teschler,[6] Baumann,[2] Memmesheimer,[7] Pires and Povoa,[8] and Hartwich,[9] give a more intense reaction at times in the lumbar fluid than in the cisternal fluid.

Hartwich[9] is of the opinion that the greater intensity of the various reactions in the lumbar fluid is due to the freer circulation of the fluid in the cisternal cavities, and that sedimentation also plays a rôle. Nonne[1] and Baumann,[2] however, are not of this opinion.

To verify these observations, we undertook a study in forty-three cases of late syphilis in its various manifestations, and our observations and deductions agree in part with those of other observers.

To avoid error in our reports and that the readings might be reported impartially, we submitted our specimen to the laboratory under different names. All fluids that contained blood were discarded because the presence of blood renders globulin determination, cell counts and colloidal gold examination inaccurate and valueless.

Our patients were kept in the prone position two or three hours before the punctures were performed.

COMPARISON OF TESTS

Globulin.—The globulin reaction is the least important test in syphilis of the nervous system. Baumann,[2] in sixty-three cases, of which thirty-two were syphilis, found an agreement between the two fluids in 82.5 per cent of his cases. Teschler[6] reports slightly more positive globulin reactions in the lumbar fluid in his eleven cases. Memmesheimer,[7] in sixteen nonsyphilitic cases, found the reactions practically alike in the two fluids. In twelve cases of secondary syphilis the reaction was more intense in the lumbar fluid. In our series there was agreement in thirty-two cases. In one the cisternal fluid gave a more intense reaction, while in ten the lumbar fluid was slightly more positive.

Colloidal Gold Reaction.—The colloidal gold test is of little value in itself, as it serves only to corroborate the other three tests. The difficulty of preparing a satisfactory colloidal gold solution leaves at all times a large margin of error in its clinical interpretation.

Zurhelle and Krechel[10] mention the fact that a curve of 01210 has very little significance, and we agree with their observations. Memmesheimer,[7] Baumann[2] and Teschler[6] in their cases found a slightly more intense reaction in the lumbar fluid. In our series we did not agree with these observations. In twelve cases the reactions were alike. In fourteen cases the cisternal fluid gave a more intense reaction, while in seventeen cases the lumbar fluid gave one slightly more intense. In no case was there any great difference. When this test is repeated, as is so readily done in cisternal puncture, the great variance in its intensity argues against its diagnostic and prognostic value. This is clearly shown in case 42, in which a cisternal puncture was made twenty-three days previous to the double puncture. The fluid on the first examination gave a typical paretic curve, but twenty-three days later both cisternal and lumbar fluids gave practically a negative reaction.

Cells.—Observers differ as to the number of cells per cubic millimeter which may be considered normal. Memmesheimer,[3] in his sixteen nonsyphilitic cases, found an average of 5.3 cells per cubic millimeter; nine cases showed a greater number of cells in the lumbar fluid and two a greater number of cells in the cisternal fluid. Cornaz[11] speaks of 2.4 cells per cubic millimeter as normal. Wile and Hasley[12] set an arbitrary normal of 8 cells, and state that an increase of 1 or 2 cells can hardly be accepted as definite proof of involvement. Dreyfus[13] considers more than 5 cells as pathologic. Kaliski and Strauss[14] say that from 8 to 10 lymphocytes are within the bounds of normal observations. Stokes[15] states that counts between 6 and 10 must be regarded as borderline, and above 10 as distinctly abnormal. It has also been shown by Kaliski and Strauss[14] and others that in definite neurosyphilitic cases there may be no evident pleocytosis, as we show in several of our cases.

Therefore, having no arbitrary standard as to the number of cells which one can take as a guide to nor-

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* From the Department of Dermatology and Syphilology, New York University and Bellevue Medical College and Lenox Hill Hospital, services of Dr. Howard Fox.
* Read before the Section on Dermatology and Syphilology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

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mality, we have considered the fluids in agreement when there has not been a greater difference than 4 cells, and we consequently report forty-one cases in agreement. In two cases the cell count was greater by 10 in the lumbar fluid.

Case 42 well illustrates the differences in the cell count. The first cisternal puncture showed 5 cells; twenty-three days later the counts were 20 and 30 cells, respectively, by cisternal and lumbar comparisons.

Baumann,[2] in forty cases, found more cells in the cisternal fluid in fifteen cases, and in twenty-five cases there were more cells in the lumbar fluid. Memmesheimer[3] also found a slightly greater number of cells in the lumbar fluid than in the cisternal fluid.

TABLE 1.—*Comparison of Reactions of the Two Fluids*

Clinical Diagnosis	Reactions	Wassermann	Cells	Gold	Globulin
Paresis (15)	Agree	15	15	1	11
	Greater in suboccipital	0	0	7	1
	Greater in lumbar	0	0	7	3
Tabes (5)	Agree	5	5	3	5
	Greater in suboccipital	0	0	0	0
	Greater in lumbar	0	0	2	0
Meningovascular (9)	Agree	9	7	1	4
	Greater in suboccipital	0	0	4	1
	Greater in lumbar	0	2	4	4
Asymptomatic (14)	Agree	14	14	7	10
	Greater in suboccipital	0	0	3	1
	Greater in lumbar	0	0	4	3

TABLE 2.—*Paresis*

Case	Fluid	Wassermann: Alcoholic Dil.	0.5	0.4	0.3	0.2	0.1	Wassermann: Cholesterinized	0.5	0.4	0.3	0.2	0.1	Cells	Globulin	Colloidal Gold
5	Cisternal	+	+	+	+	+		+	+	+	+	+		10	3+	5443211000
	Lumbar	+	+	+	+	+		+	+	+	+	+		12	3+	5443321000
6	Cisternal	+	+	+	+	+		+	+	+	+	+		2	1+	5554331000
	Lumbar	+	+	+	+	+		+	+	+	+	+		2	1+	5544321000
8	Cisternal	0	0	0	0	0		0	0	0	0	0		2	2+	0344211000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	2+	3343211000
10	Cisternal	0	0	0	0	0		0	0	0	0	0		0	2+	1231100000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	3+	1223310000
13	Cisternal	0	0	0	0	0		0	0	0	0	0		4	0	0121000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		2	0	1121000000
19	Cisternal	0	0	0	0	0		0	0	0	0	0		0	0	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	0	0112210000
21	Cisternal	0	0	0	0	0		0	0	0	0	0		0	1+	0122100000
	Lumbar	0	0	0	0	0		0	0	0	0	0		4	1+	0122110000
22	Cisternal	+	+	+	+	+		+	+	+	+	+		4	0	5555443100
	Lumbar	+	+	+	+	+		+	+	+	+	+		0	0	5555431100
25	Cisternal	+	+	+	+	+		+	+	+	+	+		10	0	5555442100
	Lumbar	+	+	+	+	+		+	+	+	+	+		8	0	5555441100
26	Cisternal	+	+	+	+	+		+	+	+	+	+		1	0	5555310000
	Lumbar	+	+	+	+	+		+	+	+	+	+		1	2+	5554310000
29	Cisternal	0	0	0	0	0		0	0	0	0	0		0	2+	0122100000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	2+	0123110000
34	Cisternal	0	0	0	0	0		0	0	0	0	0		1	1+	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		2	1+	0000000000
35	Cisternal	0	0	0	0	0		0	0	0	0	0		1	2+	4423210000
	Lumbar	0	0	0	0	0		0	0	0	0	0		2	1+	5334310000
11	Cisternal	0	0	0	0	0		0	0	0	0	0		1	2+	5433210000
	Lumber	0	0	0	0	0		0	0	0	0	0		2	2+	5433221000
12	Cisternal	0	0	0	0	0		0	0	0	0	0		3	0	2211100000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	0	2211000000

TABLE 3.—*Tabes*

Case	Fluid	Wassermann: Alcoholic Dil.	0.5	0.4	0.3	0.2	0.1	Wassermann: Cholesterinized	0.5	0.4	0.3	0.2	0.1	Cells	Globulin	Colloidal Gold
4	Cisternal	0	0	0	0	0		0	0	0	0	0		3	2+	5544311000
	Lumbar	0	0	0	0	0		0	0	0	0	0		3	2+	5554211100
18	Cisternal	0	0	0	0	0		0	0	0	0	0		0	0	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	0	0000000000
28	Cisternal	0	0	0	0	0		0	0	0	0	0		0	0	1122100000
	Lumbar	0	0	0	0	0		0	0	0	0	0		2	0	1222110000
41	Cisternal	0	0	0	0	0		0	0	0	0	0		2	3+	0010000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		1	3+	0001100000
43	Cisternal	0	0	0	0	0		0	0	0	0	0		32	3+	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		28	3+	0000000000

TABLE 4.—*Meningovascular*

Case	Fluid	Wassermann: Alcoholic Dil.	0.5	0.4	0.3	0.2	0.1	Wassermann: Cholesterinized	0.5	0.4	0.3	0.2	0.1	Cells	Globulin	Colloidal Gold
1	Cisternal	+	+	+	0	0		+	+	±	0	0		30	1+	1112210000
	Lumbar	+	+	+	0	0		+	+	±	0	0		40	1, 2+	1112221000
2	Cisternal	+	+	+	+	+		+	+	+	+	+		0	4+	5443110000
	Lumbar	+	+	+	+	+		+	+	+	+	+		4	4+	5543211000
3	Cisternal	0	0	0	0	0		0	0	0	0	0		20	0	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		20	1+	0010000000
7	Cisternal	0	0	0	0	0		0	0	0	0	0		2	0	5544311000
	Lumbar	0	0	0	0	0		0	0	0	0	0		2	2+	4433221000
17	Cisternal	0	0	0	0	0		0	0	0	0	0		0	0	0011000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		4	2+	0012100000
20	Cisternal	0	0	0	0	0		0	0	0	0	0		1	0	0123000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		2	0	0122100000
24	Cisternal	0	0	0	0	0		0	0	0	0	0		2	0	0122210000
	Lumbar	0	0	0	0	0		0	0	0	0	0		6	2+	0122110000
37	Cisternal	0	0	0	0	0		0	0	0	0	0		3	0	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	0	0000000000
42	Cisternal	+	+	±	0	0		+	+	+	±	0		20	1+	0012210000
	Lumbar	+	+	±	0	0		+	+	+	±	0		30	1+	0001110000

TABLE 5.—*Asymptomatic*

Case	Fluid	Wassermann: Alcoholic Dil.	0.5	0.4	0.3	0.2	0.1	Wassermann: Cholesterinized	0.5	0.4	0.3	0.2	0.1	Cells	Globulin	Colloidal Gold
9	Cisternal	0	0	0	0	0		0	0	0	0	0		2	0	0011000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		5	1+	0121000000
14	Cisternal	0	0	0	0	0		0	0	0	0	0		3	0	3221100000
	Lumbar	0	0	0	0	0		0	0	0	0	0		2	0	4332100000
15	Cisternal	0	0	0	0	0		0	0	0	0	0		3	0	5541000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		1	0	4432110000
16	Cisternal	0	0	0	0	0		0	0	0	0	0		0	0	1100000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	2+	1110000000
23	Cisternal	0	0	0	0	0		0	0	0	0	0		0	1+	1221100000
	Lumbar	0	0	0	0	0		0	0	0	0	0		3	1+	1221100000
27	Cisternal	0	0	0	0	0		0	0	0	0	0		0	0	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	0	0000000000
30	Cisternal	0	0	0	0	0		0	0	0	0	0		0	1+	0122100000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	1+	0122110000
31	Cisternal	0	0	0	0	0		0	0	0	0	0		6	2+	0110000000
	Lumber	0	0	0	0	0		0	0	0	0	0		4	1+	0100000000
32	Cisternal	0	0	0	0	0		0	0	0	0	0		0	0	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	0	0000000000
33	Cisternal	0	0	0	0	0		0	0	0	0	0		1	0	0011000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		1	0	0011000000
35	Cisternal	0	0	0	0	0		0	0	0	0	0		0	0	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		0	1+	0011110000
38	Cisternal	0	0	0	0	0		0	0	0	0	0		2	1+	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		2	1+	0000000000
39	Cisternal	0	0	0	0	0		0	0	0	0	0		1	0	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		3	0	0000000000
40	Cisternal	0	0	0	0	0		0	0	0	0	0		2	1+	0000000000
	Lumbar	0	0	0	0	0		0	0	0	0	0		3	1+	0000000000

TABLE 6.—*Reactions in Two Cases*

Case 42	Cells	Globulin		Wassermann 0.5	0.4	0.3	0.2	0.1	Colloidal Gold
Cisternal puncture.....	5	3+	Alc.	+	+	+	+	0	5555532100
March 13, 1928			Chol.	+	+	+	+	0	
23 days later									
Cisternal puncture.....	20	1+	Alc.	+	+	±	0	0	0012210000
April 5, 1928			Chol.	+	+	±	0	0	
Lumbar puncture.....	30	1+	Alc.	+	+	+	±	0	0001110000
April 5, 1928			Chol.	+	+	+	±	0	
Case 1									
Cisternal puncture.....	50	0	Alc.	+	±	0	0	0	2223332000
Jan. 16, 1928			Chol.	+	+	+	0	0	
10 days later									
Cisternal puncture.....	30	1+	Alc.	+	+	+	0	0	1112210000
Jan. 26, 1928			Chol.	+	+	+	0	0	
Lumbar puncture.....	40	1+ to 2+	Alc.	+	+	±	0	0	1112221000
Jan. 26, 1928			Chol.	+	+	±	0	0	

Wassermann Reaction.—This is the only specific test of the four. The concentrations in our tests were 0.5, 0.4, 0.3, 0.2, and 0.1 cc. of spinal fluid, both alcoholic and cholesterinized guinea-pig heart antigens and icebox fixation being used. Baumann,[2] in his sixty-three cases, found the Wassermann reactions alike in all, and says that it is interesting and noteworthy that the most

important test of the four should be the same. In our forty-three cases the reactions agreed except as shown in cases 1 and 42, and then disagreed only as regards the intensity.

CONCLUSIONS

1. A comparative study of cisternal and lumbar fluids in syphilis shows slight differences in cell count globulin reaction and colloidal gold reaction.

2. It shows practically no difference in the Wassermann reaction.

3. The interpretation of a spinal fluid analysis must not be based on a single finding, but on the results of the four tests in conjunction with the clinical examination.

4. In view of the slight differences that may at times exist in the two fluids, the distinct advantages to the patient following cisternal puncture should lead the observer to prefer this method to lumbar puncture.

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ABSTRACT OF DISCUSSION

DR. PAUL A. O'LEARY, Rochester, Minn.: My experience with cisternal puncture as a diagnostic and therapeutic means is limited because the method did not appear to offer any material advantage over lumbar puncture. Cisternal puncture may be of value neurologically in determining the presence of spinal canal block and for the injection of iodized oil to locate such a block. In a serologic study of spinal fluid I did not note any significant difference in the fluids obtained by the cisternal and lumbar routes, and I felt that the slight differences noted were due to technical variations. I believe that the hazard offered by cisternal puncture is quite obvious from the anatomic point of view, and particularly serious may be the presence of anatomic abnormalities in this location or the unexpected presence of a brain tumor. It is admitted that the same conditions have led to fatalities following lumbar puncture. I cannot agree that patients object less to repeated cisternal punctures than to lumbar punctures. Last year we made more than 4,200 lumbar punctures. I believe that the use of a little cocaine, a perfected technic and the practice of impressing the patient with the idea that repeated spinal fluid examinations are often necessary for the intelligent management of his condition permit of lumbar punctures as often as the exigencies of the case demand. In a dispensary clientele shaving the neck below the inion probably does not meet with much objection from the patient, but in private practice such preparation offers an objectionable stigma. One particularly interesting feature of the author's study was the absence of spinal puncture headache in the patients they examined. My associate Dr. Nelson recently concluded an experimental study which shows that postpuncture headache is due to a reduction in the spinal fluid pressure developing as a result of leakage through the hole in the dura made by the needle. This is not a new conception but his animal experimentation work offers proof of this concept and he has developed a means of preventing such reactions. The infrequency of postcisternal headache is probably due to the fact that following withdrawal of the fluid the patients are placed in a sitting posture so that the upper level of the spinal fluid is below the puncture wound, which accounts for the absence of leakage of spinal fluid. Anatomic differences, particularly variations in the thickness of the dura, in this locality, as compared with the lumbar region, may also explain the low incidence of reactions. Drs. Saunders and Spiegel are to be commended for perfecting the cisternal puncture technic, for studying a large series of cases so thoroughly, and for repeating the observation that there is no essential differences in the serologic studies of spinal fluid obtained by both the cisternal and the lumbar routes. I cannot, however, agree with their suggestion that cisternal puncture should be done as a routine procedure in place of lumbar puncture.

DR. HARRY C. SAUNDERS, New York: We do not feel that the puncture of the cisterna magna is any more dangerous than that of the lumbar region, nor is it necessary to hospitalize the patients. Up to last November, more than 10,000 cases had been reported by various operators, and since then Dr. Spiegel has made more than 350 punctures and I have made 270. In all, two deaths were reported, one in a case of an abnormal vertebral artery, and another in a case of tumor. In no instance did the technic cause the fatality. We do not shave the back of the neck. We wash the part with alcohol, paint with iodine and wash again with alcohol. This is the technic used by the German operators, who have reported most of the cases. There has not been any meningitis following the procedure. Collapse and other alarming symptoms have been reported, but the same is true of lumbar puncture. I do not feel that the collapse has been due to the location in which the puncture has been done, but rather has resulted from shock, which would have followed one route as well as the other. In our experience, so far as the patient is concerned, this procedure is far preferable to lumbar puncture. In lumbar puncture we have to put the patient to bed for at least twenty-four hours and during that time he often suffers severe headache. Occasionally, the patient has been incapacitated for two weeks. In puncture of the cisterna magna, this condition does not obtain. The patient is immediately allowed to get up, for in the upright position the pressure in the cavity is negative and there is no seepage. In making the puncture by the Ayer method there is a great deal of danger. Here the stylet is left in the needle until one thinks one has reached the fluid. As the distance varies from 2.5 to 8 cm., knowing the location depends entirely on one's sense of touch, and it requires much experience to obtain a sense of touch that will give a feeling of safety in doing the puncture in that way. In our work, we have employed the Eskuchen method. The needle is carried to the occiput just posterior to the foramen magnum, the stylet is withdrawn and we feel our way along the occiput. When the dura is pierced we immediately obtain a flow of the fluid. We have a margin of safety of from 0.75 to 2 cm., that being the depth of the cisterna magna.

DR. SAMUAL W. BECKER, Chicago: I am much interested in this report by Drs. Saunders and Spiegel because we are confronted with the necessity of doing lumbar or cisternal punctures on ambulatory patients. On the other hand, we are compelled to use this material for undergraduate and postgraduate teaching and for the training of interns. It is a question whether one would be justified in allowing an untrained man to do cisternal punctures. In endeavoring to decrease the postoperative complications of lumbar puncture we use a 21 gage needle with a solid tip, somewhat similar to that of a cambric sewing needle. Some distance behind this tip is a tiny orifice which is always directed toward the patient's head. We do the puncture in all these patients in the dispensary and tell them to go home and not to go to bed. In a small series of cases headaches developed in about 25 per cent, in no case sufficient to keep the patient away from his work. From our observations it seems that the tiny hole in the dura made by this needle is so small that the reformation of fluid can practically keep pace with the seepage from the wound. Another advantage is that there is no gross leakage of fluid from the small wound, and no bloody fluid. The chief difficulty is the manufacture of needles of this type. The manufacturers are struggling with it and may be able to perfect it. If so, we shall have a means that may be as successful as cisternal puncture and one that can be used safely by undergraduates, postgraduates and interns.

DR. LEO SPIEGEL, New York: We have not had any difficulty with headache or any other after-effect. We perform the test either in the office or in the clinic, and the patients are allowed to go home or to return to work. Blood very seldom contaminates the fluid. In the literature there are more than 10,000 reports with seven fatalities, five of which were due to inexperience on the part of the investigator. We use the indirect method, which is safer than the direct. Eskuchen described his method in 1923, not knowing of Ayer's previous work. All this work in Germany has been done since 1923. At Bonn, and at other German clinics, it is used exclusively and they are very enthusiastic about it. With this method we enter in the midline, directly upward and forward, with the idea of striking the edge of the occiput. After one strikes the

occiput, called the point of orientation, the stylet should be withdrawn; then the point of the needle is depressed, and from there on until the dura is punctured the distance varies from 0.5 to 1.5 cm. It is always important to puncture the skin and subcutaneous tissues quickly, as there is very little pain after these tissues have been passed. I sharpen my needles differently from the way they come from the manufacturer, rounding them, as has been shown by Greene in his lumbar puncture work. I endeavor, as nearly as possible, to attain a conical point like that of a cambric needle. A needle thus prepared penetrates the dense fibrous tissues much more readily, causing less trauma, and consequently less pain. We have not had any trouble whatever with this method.

THE RELATION BETWEEN THE BACTERIAL FLORA AND TRACHEOBRONCHIAL FOREIGN BODIES

A PRELIMINARY STUDY BASED ON ONE HUNDRED CASES *

CARL J. BUCHER, M.D.
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According to Chevalier Jackson,[1] the reaction produced by a foreign body lodged in the air passages depends on the nature of the foreign body, the degree of obstruction to drainage, the chemical and biochemical processes, the age of the patient, the length of sojourn of the foreign body in the bronchus, and the bacterial infection. He further states that no systematic studies of the bacterial flora have been made, and a review of the literature subsequent to his publication fails to reveal any additional knowledge concerning this problem.

TECHNIC

I took cultures of secretion from the trachea and bronchi of 100 patients who had foreign bodies in the air passages to determine what part the bacteria play in this condition. The material was obtained from the Bronchoscopic Clinic of Dr. Chevalier Jackson. It was collected by the bronchoscopists in the following manner: A laryngoscope was introduced into the larynx and the bronchoscope passed through its lumen. This procedure permitted the introduction of the bronchoscope into the trachea without soiling it with mouth secretions. The mucopus in the air passageways was now collected on small sterile gauze swabs or by means of an aspirator introduced through the bronchoscope. The first method was employed when material was scant; the second, when there was an abundance of pus. Usually, it was not only impracticable but impossible to obtain cultures of the foreign bodies directly, since, in their removal, many came in contact with the mouth and were contaminated.

In the use of this method of collecting pus, it occurred to me that some secretion from the pharynx and larynx might collect between the outer wall of the bronchoscope and the wall of the trachea and ooze out below, at the tip of the bronchoscope, giving erroneous impressions regarding the bacteria present. To check up on this source of error, Dr. L. H. Clerf of the Bronchoscopic Clinic had a metal collar placed on the pus collector. This fitted the bronchoscope snugly, so that the tip of the collector did not come in contact with the instrument at any point. Collections were made from the trachea and bronchi in a sufficient number of cases, with this collector and with one without the collar, to justify the conclusion that this source of contamination was negligible.

Smears were made and examined, and the pus, either on swabs or in the liquid state, was inoculated into a 1 per cent dextrose bouillon. It was also streaked on whole human blood agar plates. The final titer of all mediums used ranged from p_H 7.5 to p_H 7.8. For the past several months the ordinary bouillon has been replaced by a 1 per cent dextrose hormone broth. The difference in results has been quantitative rather than qualitative. The same bacteria grew as before, but they grew more luxuriantly on this medium. When an abundance of pus was obtained, some of it was inoculated into the peritoneal cavity of a white mouse. The cultures were studied at the end of twenty-four, forty-eight and seventy-two hours and such transfers made as were indicated. From this point, appropriate cultural and immunologic methods as well as laboratory animals were used to identify the organisms. In addition, most of the material was subjected to dark field examination to ascertain the presence of spirochetes. No attempt was made in this study to determine the anaerobic bacteria present.

RESULTS

The organisms isolated, the frequency of their occurrence and the type of foreign body case in which they were present are exhibited in the accompanying table. The foreign bodies are grouped into three classes: (1) vegetal foreign bodies, such as nuts, seeds, wood and vegetable fiber; (2) teeth and bone, and (3) metallic foreign bodies, such as safety pins, nails and tacks. It will be noted that organisms of the Friedländer group and diphtheroid bacilli are classified as groups rather than as individuals. *Bacillus tuberculosis* and *Bacillus diphtheriae* were never isolated in this series of cases.

Pure cultures of organisms were obtained at times; however, they were not the rule. Usually two, three or four types of organisms were isolated and in a few instances as many as six or seven types were recovered from a single case.

COMMENT ON INDIVIDUAL ORGANISMS

The streptococci were of most frequent occurrence. *Streptococcus hemolyticus* was less often isolated than *S. viridans* and the nonhemolytic types. Proportionately, they occurred more frequently when the foreign body was a vegetal or bony one. In almost all the cases in which they were present, the patients were acutely ill. These organisms were present in pus aspirated from children and from adults.

The pneumococcus was obtained in 36 per cent of all cases. It occurred in the young and the old, in patients who were acutely ill, and in those not so much affected. A limited number of the pneumococci were typed but not a sufficient number to warrant definite conclusions. It is, however, interesting that most of them thus far have been type 4; only one was a type 2 and two were type 3 pneumococci. Further studies along this line are in progress.

While both *Staphylococcus aureus* and *albus* were frequently isolated in this series, they were not limited to any one type of case. Occasionally they occurred in pure culture. They were found in young and old persons and in mild and severe reactions to the foreign bodies, and the length of sojourn did not seem to influence their presence or absence.

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* From the Department of Pathology, Jefferson Medical College Hospital.

1. Jackson, Chevalier: Observations on the Pathology of Foreign Bodies in the Air and Food Passages, Surg. Gynec. Obst. **28**: 201 (March) 1919.

Bacillus influenzae never occurred in pure culture. Usually it was associated with *Micrococcus catarrhalis* or *Micrococcus tetragenus*. Spirochetes were recovered only once, and in that particular case there was a coexisting putrid bronchitis. Yeasts occurred several times. As far as I was able to determine, they were saprophytes.

AGE

The age of the patients varied from 1 to 67 years. The foreign body in the youngest patient was a safety pin which had been in the air passages for eight days. *Staphylococcus aureus* was obtained in pure culture. The oldest patient, aged 67, had had a dental fixture in the left bronchus for twenty-two days. *Staphylococcus aureus* and the pneumococcus were isolated from the bronchial secretions.

SOJOURN OF THE FOREIGN BODY IN THE AIR PASSAGES

The sojourn of the foreign bodies in the air passages in this series of cases ranged from six hours to eighteen years. The first patient was a child who had aspirated a lima bean; the organisms recovered were *Streptococcus viridans, Staphylococcus aureus, Micrococcus tetragenus* and *Bacillus coli.* The second patient was a woman, aged 29, who had had a nail in the bronchus; *Staphylococcus albus, Streptococcus hemolyticus* and *Micrococcus catarrhalis* were obtained from cultures. The former patient was acutely ill; the latter, aside from a chronic cough, did not have any great discomfort.

TYPE OF FOREIGN BODY

I have referred to the type of foreign body several times previously. In general, no particular kind of bacteria could be associated with any one type of foreign body. It is true that the percentage rate of occurrence of *Streptococcus hemolyticus* was slightly greater in cases of vegetal and bony foreign bodies than in cases of metallic foreign bodies. This, however, did not hold true for such organisms as the pneumococcus and *Staphylococcus aureus* and *albus*.

The following two cases illustrate my point. The same kind of organisms, the pneumococcus and *Micrococcus catarrhalis,* were isolated from each. One patient was a 2 year old child who had had an open safety pin in the bronchus for six months; the other was a child, aged 20 months, who had had a timothy head in the bronchus for nine months.

DEGREE OF REACTION

Both Jackson [1] and McCrae [2] have emphasized the relation between the type of foreign body, the age of the patient and the resulting symptoms. They have shown that vegetal foreign bodies, particularly peanuts, produce severe symptoms and are accompanied in the great majority of instances by grave infection. Yet it is singular that the bacteriologic investigations offer so little as a basis for the explanation of the degree of reaction, as these cases will illustrate. The patients were children, the youngest 14 months old, the oldest 9 years. The foreign bodies were of vegetal origin and the resultant infections were grave. On bacteriologic examination the following organisms were found: case 1, *Staphylococcus albus,* a diphtheroid bacillus, and *Streptococcus viridans;* case 2, *Streptococcus hemolyticus, Bacillus influenzae,* the pneumococcus, *Micrococcus catarrhalis* and *Micrococcus tetragenus;* case 3, *Staphylococcus aureus* and a diphtheroid bacillus.

2. McCrae, Thomas: Lumleian Lectures on the Clinical Features of Foreign Bodies in the Bronchi, Lancet **1**: 787 (April 19) 1924.

As a contrast to case 3, the instance of a child, aged 3 years, who aspirated a peanut is cited. *Streptococcus hemolyticus* and *Micrococcus catarrhalis* were isolated from its bronchial secretions. The symptoms were very mild.

OBSTRUCTION OF THE BRONCHUS

In the child who aspirated a peanut, the foreign body was lodged in the trachea and drainage was good. Even though a hemolytic streptococcus was present it did not cause a marked degree of reaction. Another instance is at hand in which the same kind of organisms was isolated, but the right main bronchus in this patient was partially occluded by a peanut. The child was very ill.

COMMENT

Although the present study rests on a limited number of cases, certain conclusions seem to be apparent. No one organism is responsible for the attendant infections, and one combination of pathogenic micro-organisms is quite as capable as another, other things being equal, of producing severe infection. The virulence of the bacteria and the resistance of the patient probably play an important rôle. But these factors are extremely difficult to measure, particularly when such a heterogeneous group of bacteria can be isolated from any series of cases. In comparing the age, the type of foreign body, the degree of obstruction to the air passages, and the bacteriologic observations with the severity of reaction, it is apparent that the most important factors are the degree of obstruction to the air passages and the amount of irritation offered by the foreign body. The degree of infection present, irrespective of the exciting micro-organisms, is proportional, in the great majority of instances, to these factors. The age of the patient, the length of sojourn of the foreign body in the bronchus, and the particular kind and strain of micro-organisms play an important but more or less secondary rôle as far as the severity of reaction is concerned. To put it tersely, the bacteria present in the bronchi in cases of foreign body obstruction are capable of producing infection, but the accomplishment of this rests on other factors than the mere presence of the bacteria in the air passageways.

Number of Times of Isolation of Organisms in Cases of Foreign Body Obstruction

Names of Bacteria	Fifty-Five Cases of Vegetal Foreign Bodies		Sixteen Cases of Teeth and Bone as Foreign Bodies		Twenty-Nine Cases of Metallic Foreign Bodies	
Pneumococcus	17		8		11	
Streptococcus hemolyticus	9		2		2	
Streptococcus viridans	21	36	6	9	6	15
Streptococcus nonhemolyticus	6		1		7	
Staphylococcus pyogenes-aureus	18		9		13	
Staphylococcus pyogenes-albus	8		2		6	
Micrococcus catarrhalis	17		5		8	
Bacillus influenzae	8		2		0	
Micrococcus tetragenus	10		0		1	
Micrococcus pharyngeus-siccus	5		3		0	
Bacillus subtilis	2*		0		2	
Bacillus coli-communis	1		0		0	
Diphtheroid bacilli	8		1		4	
Bacilli belonging to Friedländer group	5		0		2	
Nocardia ?	1		0		0	
Spirochetes	0		0		1	
Fusiform bacilli	0		0		1	
Yeast plants	0		1		3	

* Probably contamination.

CONCLUSIONS

1. A variety of pathogenic bacteria are present in the trachea and bronchi of foreign body cases.

2. Many of these are capable of producing infection.

3. There is usually more than one kind of bacteria present in the bronchus of a single case.

4. In the great majority of cases the degree of infection seems to depend more on the type of foreign body, the degree of obstruction to drainage, the age of the patient and the sojourn of the foreign body in the bronchus than on the kind of bacteria present.

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FRACTIONAL KIDNEY FUNCTION TESTS *

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When Cushny crystallized the idea in regard to kidney physiology into the so-called modern theory of urine formation, he gave great impetus to the better understanding of all renal physiology. Richards and his co-workers with the capillary pipet have been able to supply existing theories in regard to urine formation with the foundation of experimental proof, which alone seemed lacking in Cushny's summation, that the modern theory indicated some form of filtration in the glomerulus with reabsorption in the tubules. The modern theory was the best result of reasoning from indirect evidence then at hand. The work coming from the laboratory of Richards [1] confirms the theory of filtration through the glomeruli and reabsorption in the tubules, and as a result the kidney must be looked on as an organ made up of a large number of units, each unit consisting of a glomerulus with its tubule. It is evident that the organ so constructed acts in the most efficient manner, in that only units enough are in action at any given moment to do the work required. When the work is slight, many units are resting; when the work is heavy, many more units are in action. Disease of the kidney can actually destroy individual units, thus reducing their number, or disease may alter the units, either the glomerular portion or the tubular portion or both, so that their individual efficiency is decreased. Removal of one kidney does away with one half of the total units allotted to any individual.

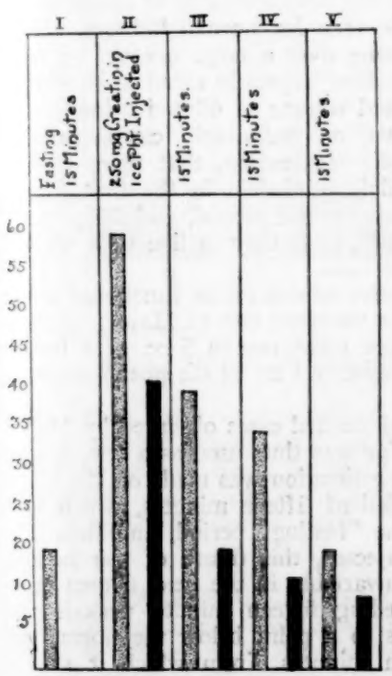

Fig. 1.—Normal curve of output for creatinine and phenolsulphonphthalein.

It is well known that, in normal individuals, phenolsulphonphthalein tests run on successive days result in a wide variation, and for this reason the value of the test has been discredited by some; but when there is the conception that it is a test of the units of the kidney then in action it can easily be seen that there would of necessity be variation in the normal. Enough strain cannot be put on the kidneys to throw all the filtering units into action at once. Those who claim that in the normal kidney increasing or forcing fluid intake does not affect the output of dye substance are unmindful of the foregoing facts. Increase in fluid intake does increase and hasten as well as facilitate the excretion of dye substance, for the very effectual reason that more filtering units are thrown into action at any one time. The smallest number of these filtering units necessary to support life must be but a small fraction of the total number in possession of the average healthy individual. The ability of the kidney to put enough of these filtering units to work is the measure of its function.

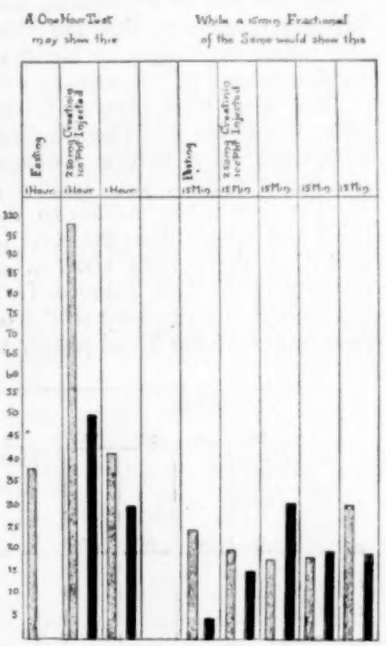

Fig. 2.—Possible differences in the results of a one hour test and a fifteen minute fractional test.

In reading and interpreting the results of kidney function tests, one is apt to forget that one is looking at a very narrow portion of the clinical problem and that, to evaluate these results properly, one must consider these observations in the light of all the other clinical data. Having in mind, then, the fact that the kidney is made up of filtering units, only a small number of which is necessary to carry on life, one may attack the problem of determining, by test if possible, whether a patient with a chronic retention of urine as in prostatism can be safely taken through a major operative procedure.

That the results of functional tests in nephritis of various types, as well as in very early disease of the kidneys, have been disappointing is too well known, but from this there has arisen the aphorism that functional tests are of no value in the medical kidney but are of considerable use in the surgical kidney, and without further explanation this is obviously true.

THE INFLUENCE OF BLOOD PRESSURE ON THE EXCRETORY FUNCTION OF THE KIDNEY

It has been my observation that practically all patients with hypertension on whom a prostatectomy has been done establish a new and permanently lower normal blood pressure level following the operation.

That increased blood pressure and decreased functional ability of the kidney go hand in hand is suspected, but I shall be able to show that, when the hypertension is relieved by drainage and rest in bed, the

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* From the Urologic Service, the University of Kansas School of Medicine.

* Read before the Section on Urology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

1. Richards, A. N.: The Nature and Mode of Regulation of Glomerular Function, Am. J. M. Sc. **175**: 781 (Dec.) 1925.

kidney by no means increases its functional capacity in ratio to the decrease in arterial tension. It is my observation that the opposite is true, namely, that the falling of the blood pressure causes further embarrassment of the kidney, and it is not until the blood pressure stabilizes at a new level that the kidney reaches the optimum of its functional ability.

The much talked of evil that is said to follow the rapid or too rapid emptying of the total retention in prostatism has in it elements that are the same as the foregoing; namely, that the kidney is embarrassed by the rather rapid fall in blood pressure following the sudden release of the urinary pressure.

In a fairly large number of cases in which the combined creatinine and phenolsulphonphthalein test, taken at the beginning before drainage, was instiuted where the blood tension was relatively high, say 160, and another test at the bottom of the falling curve, and a third test where the new level has been established, I find that these tests show a decrease in functional capacity in the first instance, further embarrassment in the second, the recovery to the optimum under the circumstances of the blood pressure stabilization. This is

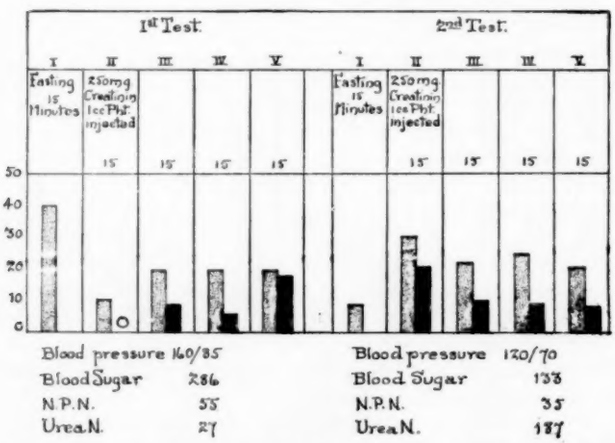

Fig. 3.—Results of tests in a patient, aged 85 years, with enlargement of the prostate and severe diabetes.

only one of a series of clinical signs and guide-posts which one makes use of in interpreting these tests. Too often a test is done at the time a patient is admitted to the hospital and drainage is instituted, and another test is made when the patient has stabilized and is about ready for operation, so that nothing is known concerning what took place in the interval between the two tests. In order to find out definitely what was going on in this important interval, I institute tests every second or third day, using functional tests of fifteen minute fractions, and the combined creatinine and phenolsulphonphthalein test together with daily blood pressure readings, and fluid intake and output chart. In this manner I am able to interpret a little more closely what takes place. I conceive the process to be about as follows:

The patient is a prostatic and has a gradually increasing obstruction due to the increasing size of the prostate, and at the same time a gradual increasing amount of residual urine. The irritability set up by this causes frequency of urination and robs him of his sleep, causes him to lose his appetite, and produces a train of evil effects. If in addition, as is often the case, this patient, who is in the concluding decades of life, has an injured myocardium or hypertension and kidneys that have lost considerable of their filtering units by reason of sclerosis, he presents a picture of an average patient who comes for relief from an unbearable situation.

The problem is then whether or not such a patient can be prepared for operation, and also, if operable, the optimal time for operation. The patient is taken as he comes into the hospital, and in all probability a number of the filtering units are embarrassed by the continual excretion of toxic substances; the blood pressure increases to aid in forcing the filtration. Drainage is instituted and the blood pressure falls, but the filtering unit, deprived of the pressure to which it has become dependent, cannot for a time perform as well as formerly. When rest in bed, free drainage and digitalis have stabilized the blood pressure, the filtering units themselves stabilize and the optimum is reached.

The work of Shaw [2] on the fifteen minute elimination curves is extremely interesting and proves what I have found in functional studies which have covered a period of five years and embrace a total of more than three thousand estimations, namely, that the two first fifteen minute periods after intravenous injection are by far the most important. In the first fifteen minutes after intravenous injection of the dye, Shaw found that the average volume of excretion in normal persons was 40 per cent and in the second fifteen minutes 17 per cent. After that the excretion rate fell rapidly from 8 per cent to a trace. The effect of volume of urine on elimination was checked by Shaw, and his conclusion was that in the normal individual this had no effect on the rate or course of excretion.

While this may be true for normal kidneys, I feel confident from working over a large number of tests that the pathologic kidney is greatly aided in its efforts to excrete by increased volume of diluted urine.

Shaw's observation on pathologic cases, notably patients with prostatic obstruction, that there is frequently no phenolsulphonphthalein in the first fifteen minutes, a small amount in the second, and the peak of elimination in the third, is exactly in line with what I have found to be the case.

I have another source of control in functional tests; namely, the creatinine tolerance test of Major. In this I use 250 mg. of pure creatinine in 5 cc. of a buffer solution mixed with exactly 1 cc. of the phenolsulphonphthalein.

In a large series of normal cases observed by Major in which the creatinine was thus used as a test, it was found that when the estimation was made on the urine collected over a period of fifteen minutes, which was arbitrarily termed the "fasting" period, and then 250 mg. of creatinine injected, this figure of the fasting period was trebled invariably in the next fifteen minutes. In the succeeding fifteen minute periods the curve gradually falls to a point below the normal of the "fasting" fifteen minutes, from which it slowly recovers to normal.

I have checked these creatinine tests in hundreds of separate kidney specimens and find that this trebling of the amount obtained in this "fasting" period is invariable, whether the period is three minutes or sixty minutes. Thus I have found with combined creatinine-phenolsulphonphthalein functional tests that the full value of functional tests is not obtained in the usual one hour-two hour basis but the story is all recorded in the first thirty minutes.

2. Shaw, E. C.: A Study of the Curve of Elimination of Phenolsulphonphthalein by the Normal and the Diseased Kidney, J. Urol. 13: 575 (June) 1925.

Those cases in which the peak of the phenolsulphonphthalein and creatinine output is reached in the third and fourth periods all present serious impairment of renal function. In cases in which nephritis is a complication the phenolsulphonphthalein may pass through readily and give a satisfactory if not quite normal curve, but the creatinine will invariably present a depression in the first two or three periods, showing that such a kidney cannot take the load, so to speak, and then is unable to maintain its normal level. In other words, its threshold for creatinine is temporarily greatly increased. One must continually seek to interpret kidney function tests in the light of clinical observations.

If only the simplest tests were available, these would suffice, provided one knew from experimental evidence what was taking place. These three tests would be the condition of the tongue, the water elimination test and specific gravity of Volhard, and the appearance time of phenolsulphonphthalein. All other factors being in

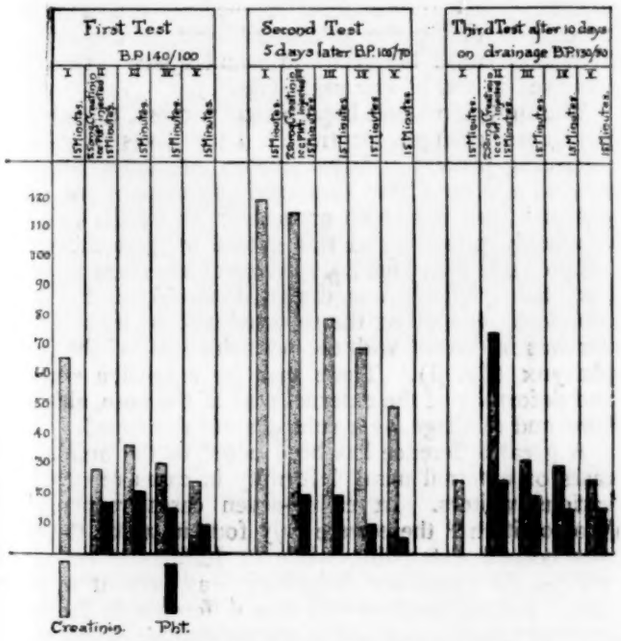

Fig. 4.—Tests in a case of prostatic enlargement.

line, then a moist tongue, ability to concentrate urine with a specific gravity of from 1.002 to above 1.012 and to cause the dye to appear in five minutes would indicate that the patient was a good surgical risk.

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ABSTRACT OF DISCUSSION

DR. ERNEST RUPEL, Indianapolis: I have been carrying on a study of one phase of the phenolsulphonphthalein test; namely, the daily output of the dye. I wish to present it graphically in order to emphasize another reason for the repeated tests Dr. Ockerblad has suggested. From the clinical material available in the university hospitals we chose women patients because they could be catheterized every two hours and the specimens could be collected by nurses, who are usually more reliable than orderlies. The lesson to be gained from this work is that it is not at all safe to make deductions from the observations of any one day. In sick persons the variation in the amount of dye excreted on successive days is enough to warrant a closer study than that to which we have been accustomed. The mean output of repeated tests more safely represents the kidney work. In normal healthy persons in whom the variation is slight, and the output high, I believe that a few repetitions of the test might suffice. On the other hand, when the output is below normal, it is safer to make readings at very short intervals, although I think the daily readings are unnecessary. Tests made on the first, fourth and seventh or eighth days will give a much more accurate picture of the true situation than tests made at intervals of ten days.

RHINOSCLEROMA*

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The recent examination of three cases of rhinoscleroma in the Mayo Clinic within a period of four and a half months stimulated interest in this subject and led to the bacteriologic studies reported herewith. The observation of three cases in this period is unusual, in view of the extreme rarity of the disease in North America, and in a way tends to be misleading since only six proved cases of rhinoscleroma have been examined in the clinic during the last eight and a half years. Included in the first group is probably the only case of this disease in a native-born American, diagnosed during life. This patient, a young man of Slavic parentage, has never been outside the United States. One case in this group was previously reported by New.[1]

Rhinoscleroma, or, more properly, scleroma, is a chronic infectious granuloma. It was first recognized as a clinical entity by Hebra [2] in 1870, but the causative organism, Frisch's [3] bacillus, was not discovered until twelve years later. Since then a great deal has been written on the subject, especially by Europeans, although a number of excellent articles have appeared by American writers, among whom Toeplitz and Kreuder,[4] Freeman,[5] Mayer,[6] Güntzer [7] and Watkins [8] are outstanding. The wealth of clinical data with regard to this disease in central and southeastern Europe stands out in contrast to the occasional report of an isolated case in this country. The infection is most common among the lower classes of Poles, Russians and Austrians, being endemic in their respective countries. It occurs sporadically in all the remaining central and southern European countries as well as those of southern and eastern Asia, northern Africa, Australia and North and South America. Lasagna [9] observed that the infection in Italy is apparently becoming more common and more virulent. Castellani [10] stated that rhinoscleroma is extremely rare in the tropics with the exception of Guatemala. As early as 1895, twenty-three cases, most of them among natives, had been reported in Central America. According to

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1. New, G. B.: Case 1, Rhinophyma, Case 2, Rhinoscleroma, S. Clin. North America **1**: 1393-1399 (Oct.) 1921.
2. Hebra: Ueber ein eigenthümliches Neugebilde an der Nose; Rhinosclerom; nebst histologischem Befunde vom Dr. M. Kohn, Wien. med. Wchnschr. **20**: 1-5, 1870.
3. Von Frisch, A.: Zur Aetiologie des Rhinoskleroms, Wien. med. Wchnschr. **32**: 969-972, 1882.
4. Toeplitz, Max; and Kreuder, Henry: Rhinoscleroma, Am. J. M. Sc. **130**: 81-90, 1905.
5. Freeman, W. J.: A Case of Rhinoscleroma, Occurring in a Russian in the United States, Ann. Otol. Rhin. & Laryng. **9**: 141-147, 1900.
6. Mayer, Emil: Scleroma of the Larynx, Am. J. M. Sc. **133**: 751-769, 1907.
7. Güntzer, J. H.: Scleroma of the Upper Respiratory Tract, M. Rec. **76**: 129-141, 1909.
8. Watkins, S. S.: Primary Scleroma of the Larynx in a Negro Born in Maryland, Surg. Gynec. Obst. **33**: 47-52 (July) 1921.
9. Lasagna, F.: Infective Scleroma of the Respiratory Passages, J. Laryng. & Otol. **40**: 369-373 (June) 1925.
10. Castellani, Aldo: Observations on Some Diseases of Central America (Tropical Rhinoscleroma), J. Laryng. & Otol. **40**: 476, 1925.

Freeman, the few cases in England and France before 1900 were all among foreigners. Mayer reviewed all the cases (sixteen) reported in North America up to 1908. He noted that all of the patients had come from some part of Poland and that the infection had begun before the patient came to this country. An authentic case had not originated in the United States up to that time. In fact, Watkins, in 1921, reported a case of primary scleroma of the larynx in a negro born in Maryland, and stated that all authentic cases of scleroma of the upper respiratory tract occurring in this country were among immigrants from Europe, and that the disease had been encountered only twice in approximately 1,500,000 patients treated in the wards and the outpatient department of Johns Hopkins Hospital during the last thirty years. Two of the six patients with rhinoscleroma seen in the clinic were Austrians, two were Roumanians, and one was a native of southern Germany who had spent some time in Russia. The sixth patient, as previously stated, was a native-born American of Slavic parentage.

Scleroma is intimately associated with lack of hygienic surroundings. One writer refers to it as a disease of the "great unwashed." In countries where it occurs endemically it is more widespread in the rural districts and is confined to areas in which it already exists. The contagious nature of the infection is indicated by Lasagna's report of fifteen Italians with the disease, nearly all members of one family living in the same house. Other instances of the infection in more than one member of the same family have been reported in two sisters by Robertson,[11] in two brothers by Secretan,[11] and in two sisters by Gerber[12] (Mayer suggests that the latter may be the same cases mentioned by Streit[11]). None of our patients knew definitely of having come in contact with the disease prior to the infection.

As a rule scleroma is somewhat more common in females than in males. In the 100 cases reported by Baurowicz,[13] forty-three were males and fifty-seven were females. In Gerber's group six were females and four were males. In the sixteen cases occurring in North America up to 1908, thirteen were females and three were males. Our six patients were all males.

The disease occurs chiefly in early adult life, although occasionally a patient beyond the fourth and even the fifth decade is mentioned in the literature; very few reports of patients in the first decade have been noted. Mayer mentions that Freudenthal[14] treated a patient aged 9 years. In Rydygier's[15] group of fourteen cases, thirteen were girls between 7 and 20. In Baurowicz's series of 100 cases, only thirteen were beyond the fourth decade. His oldest patient was aged 63; the average age was 25.7 years. Our patients ranged from 26 to 35 years, averaging 29½ years.

GROSS PATHOLOGY

The gross pathologic changes of scleroma vary with the stage of the disease in which the patient presents himself for examination. The name "rhinoscleroma," originally given the disease by Hebra, should be modified since in a large proportion of cases the infection is by no means confined to the nose. "Rhinopharyngoscleroma" has been suggested by Kobner,[16] and "scleroma respiratorium" by Wolkowitsch and Bornhauft.[16] The term scleroma is rightly coming into general use. The infection usually starts in the mucous membrane of the anterior nares and the first changes are accordingly found here. The process may remain in this area or it may gradually spread onto the upper lip and external nose or back into the nasopharynx, oropharynx, larynx or trachea. On the other hand, any of these areas may be primarily involved; the lacrimal ducts, eustachian tubes, hard and soft palate, and even the bronchi may be involved secondarily. The involvement is usually bilateral. The lesions at first appear as edematous, bluish red, discrete nodules. These may form a large, ulcerated, granulomatous mass protruding from the nostrils and involving the upper lip. A foul discharge is emitted and the entire picture often strongly suggests active sarcoma. The nodules later become hard and lighter in color. If they are confined to the mucous membrane they do not tend to ulcerate unless traumatized. Sometimes the infiltrative process involving the palate will enlarge the alveolar arch and cause the teeth to stand apart. This was observed in one of our cases (fig. 1).

The infiltrative and hyperplastic process, resulting in the gross changes mentioned, later gives way to a sclerosing process and the mucous membrane becomes scarred and atrophic. Concentric stenosis of the nasopharynx with retraction or destruction of the uvula is commonly present, and this should suggest the possibility of scleroma (fig. 2). In one of the cases reported here the epiglottis was drawn down like a trapdoor, completely concealing the stenosed glottis; its free border was in contact with the posterior wall of the hypopharynx (fig. 3). There may be extensive scarring and deformity of the external part of the nose, although bone and cartilage, as a rule, are not destroyed.

A great difference has been noted in the number of cases of external nasal deformity in cases reported by various writers. In eighty-seven cases reported by Wolkowitsch[16] there were only four in which the nose was normal externally, while in Juffings'[15] series of thirty-eight cases the deformity was present in only four. Gerber ascribed this to a difference in the virulence of the infection and to the geographic distribution. In two of our cases there was external nasal deformity. In one of these there was loss of the columella and free border of the alae, with collapse of the lower portion of the nose, producing a deformity similar to that seen sometimes in tertiary syphilis (fig. 4). Metastasis to the regional lymph nodes has been reported by several writers, but its occurrence is denied by others.

HISTOLOGIC PATHOLOGY

The histologic pathology of the disease, although not entirely characteristic, is of value in establishing the diagnosis. The most striking microscopic observation is the large vacuolated "Mikulicz,"[17] "foam" or "lace" cell, often of a diameter from fifteen to twenty times that of a red blood cell and usually containing one or more nuclei. Since they furnish a good culture medium, great numbers of Frisch's bacillus are often found within them (fig. 5). These cells are most often seen just below the epithelium and are most numerous in the oldest lesions. They are supposed to be degenerative or hydropsic forms of mononuclear leukocytes. Contrary to common belief they are not pathognomonic for rhino-

11. Quoted by Mayer (footnote 6).
12. Gerber, P. H.: Ueber das Sklerom, insbesondere in Ostpreussen, Arch. f. Laryng. u. Rhin. **10:** 347-362, 1900.
13. Baurowicz, Alexander: Das Sklerom auf Grund der Beobachtung von 100 Fällen, Arch. f. Laryng. u. Rhin. **10:** 363-402, 1900.
14. Freudenthal, W.: Rhinoscleroma, New York M. J. **63:** 133-137, 1896.
15. Quoted by Güntzer (footnote 7).
16. Quoted by Gerber (footnote 12).
17. Mikulicz, Johann: Ueber das Rhinosklerom, Arch. f. klin. Chir. **20:** 485-534, 1877.

scleroma but, as Dittrich [15] has pointed out, are also found in cases of lepra, glanders and bubonic plague. Mibelli [15] states that they occur in the granulation tissue of wounds, in areas of malignant edema and other inflammatory edemas and in acutely inflamed sweat glands. Another microscopic element seen in scleroma is the so-called Russell body or hyaline body of Unna. These are from 20 to 40 microns in diameter, stain

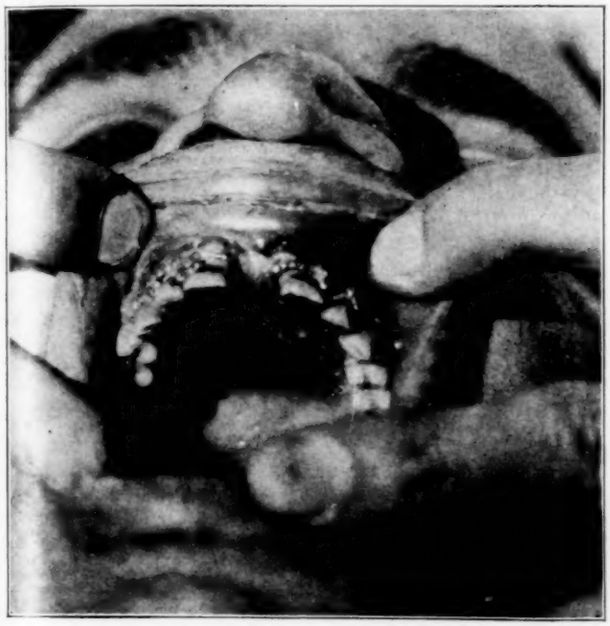


Fig. 1.—Scleroma of upper jaw.

deeply with acid dyes and are scattered throughout the microscopic section. Bacilli are never found within them. Nothing is known of their significance.

SYMPTOMS

Scleroma always runs an extremely chronic course. It may continue for from fifteen to thirty years and then gradually subside spontaneously. The duration of the symptoms of patients prior to their coming to the Mayo Clinic varied from one to eight years, averaging four and a half years. The early development is often so insidious that the exact date of onset cannot be determined. Occasionally there is a history of preceding trauma and at times this seems to bear a definite relationship, but Güntzer suggests that the disease probably is present before the injury. One of our patients was kicked in the face by a horse, and a week subsequently nasal obstruction and a profuse watery discharge from the nose appeared. Often acute rhinitis is the first evidence of trouble. Symptoms of catarrhal inflammation of the mucous membrane of the upper respiratory passages with tenacious fetid discharge follow, and crusting, hoarseness and dyspnea develop later. A tumor within the nostrils producing obstruction, bleeding readily, broadening the nose and later extending down onto the upper lip or into the pharynx is the sequence noted in many cases. As a rule, there is little pain associated with the disease, although local soreness is complained of and at times some aching. When the disease is primary in the larynx or trachea, hoarseness, coughing and dyspnea develop early. In this group of cases, the involvement is usually subglottic primarily. The process may remain confined to the area of primary involvement for years before it spreads from the nose to the pharynx and larynx or vice versa.

DIAGNOSIS

A diagnosis of scleroma based on the history or clinical data alone is not justifiable, although Juffinger claimed to be able to diagnose the disease from the odor alone. The clinical picture may be simulated by a number of diseases, among them syphilis, leprosy, lupus, atrophic rhinitis, pharyngitis and laryngitis with ozena, sarcoma and carcinoma. Culture of the discharge and biopsy afford the only means of confirming the clinical diagnosis. It is more satisfactory to make cultures from a bit of the crushed tissue than from direct smears of the discharge. The nationality of the patient is a helpful clue. Soukup [18] recently reported encouraging results in cutireactions in the diagnosis of rhinoscleroma.

TREATMENT

The treatment of scleroma has, until comparatively recently, been notoriously unsatisfactory. Prior to the demonstration by Fittig [19] in 1903, and by Schein,[15] Mayer, Pollitzer [20] and others [21] subsequently, of the value of the roentgen rays as a therapeutic agent in this disease it was considered incurable. Brunner [22] and Jakobowsky [22] in 1915 reviewed the results of treatment with mercury, arsenic, iodine, arsphenamine, tuberculin, local applications of caustic and the actual cautery, and concluded that not one was of benefit. They found vaccine to be of definite value in treating early cases and in preventing spread of the disease, but it had no effect on the sclerotic areas. Lasagna found that autogenous vaccine did not afford good results even in large doses, and concluded that even the most modern forms of treatment neither improve nor arrest the scleroma. Severe febrile reactions are said to have a beneficial effect. Freudenthal cited a case reported by Lubiner [23] from Heryng's clinic in which the scleromatous process entirely cleared following an attack of typhus fever. Improvement after an attack of erysipelas has been observed in a number of instances. Pean [24] reported a case of complete cure

Fig. 2.—Scarring of pharynx and destruction of uvula from rhinoscleroma.

18. Soukup, E.: Diagnosis of Rhinoscleroma, Cas. lek. cesk. **64:** 121 (Jan. 24) 1925; abstr. J. A. M. A. **84:** 864 (March 14) 1925.
19. Fittig: Quoted by Pollitzer.
20. Pollitzer, Sigmund: A Case of Rhinoscleroma, Laryngoscope **16:** 963-966, 1906; Rhinoscleroma Cured by X-Ray Treatment, J. Cutan. Dis. **28:** 388-390, 1910.
21. Ballin, M. J.: A Case of Rhinoscleroma Treated with the X-Ray, New York M. J. **85:** 490-494, 1907. Ranzi, quoted by Pollitzer.
22. Quoted by Watkins.
23. Lubiner, quoted by Freudenthal.
24. Pean, quoted by Freeman.

in which the diseased tissue was removed surgically and areas that showed any tendency to recur were cauterized.

All the patients observed in the Mayo Clinic had received some treatment previously. In most instances, however, a diagnosis had not been established and therapeutic measures had been rather haphazard. All cases were treated by radium in the clinic, the application being made externally over the affected areas and also in direct contact with the diseased tissue. Externally, the radium was used at a distance of 2.5 cm. with 2 mm. of lead screening, a total of from 3,000 to 5,000 milligram hours being administered. The applications directly to the tissue were made with the unscreened 25 mg. plaque or bare brass emanation tubes, from 50 to 150 milligram hours being given over each area. The applications were repeated at intervals of from a month to six weeks, depending on the progress. If the larynx was involved, radium was given externally and also by means of a long metal applicator directly into the glottis, the throat being cocainized and the application being observed in the laryngeal mirror. A potassium iodide preparation was given internally to help take care of the tenacious, fetid discharge, and the galvanic cautery was used occasionally in destroying localized, indolent nodules in the pharynx.

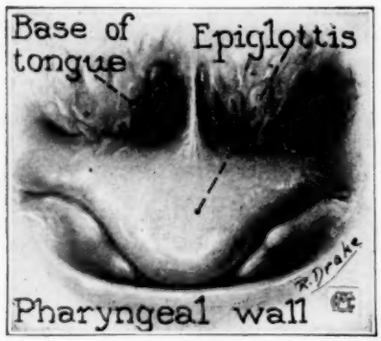


Fig. 3.—Retraction of epiglottis over stenosed larynx.

RESULTS

As the result of the foregoing treatment, three patients are free from any clinical evidence of the disease. One of these has been without sign of trouble for more than five years. The remaining two patients have been under observation and treatment for only about a year. Both had laryngeal involvement on admission; the larynx of one was so completely obstructed that an emergency tracheotomy was necessary (fig. 6). The fourth patient had been given intensive treatment with antimony prior to coming to the clinic, but the process had gradually progressed in spite of this. The disease had been present for eight years and was well advanced. The external nasal deformity, stenosis of the nostrils, nasopharynx and larynx, and the distortion of the epiglottis were marked. The process was still active in these areas and, when the trachea was opened to relieve the respiratory obstruction, active involvement of the tracheal wall was noted. This patient also is greatly improved at the present time. He is still wearing his tracheotomy tube, but the laryngeal stenosis is much less severe. As yet no dilatation has been carried out. The remaining two of the six patients examined in the clinic disappeared from observation following one and two radium treatments, respectively. It has since been learned that one of these died from the scleromatous process. The other was reported by his home physician to be greatly improved at the end of about two years. In neither of these did the infection appear more extensive than that of some of the patients who are now either much improved or entirely free from evidence of the disease. The patient reported to have died from the disease had complained of a sense of tightness in the chest at the time of examination in the clinic and had lost 25 pounds (11.3 Kg.) within three years. Bronchial involvement may have been present then, although it was not apparent.

PROGNOSIS

The prognosis in scleroma varies with the stage at which the disease comes under treatment and with the extent of the involvement. From our limited experience we feel that, if the infection is confined to the nose or pharynx, the outlook should be encouraging. If the process involves the larynx and upper portion of the trachea, the prognosis is less favorable; yet, judging from the progress in the cases in this series, it would seem that with persistent treatment many of these patients might recover entirely. The length of time required to eradicate the disease naturally varies with the stage at the time of beginning treatment, the sclerotic tissues responding much more slowly.

REPORT OF CASES

CASE 1.—A laborer, aged 32, residing in Manitoba and born in Austria, registered at the Mayo Clinic, April 7, 1919, with the complaint chiefly of hoarseness and cough of three years' duration. Four years previously dyspnea on exertion, sore throat and a sense of fulness in the throat had developed. He had lost 25 pounds (11.3 Kg.) during the last three years. A good deal of treatment had been given locally, internally and intravenously.

Examination disclosed thick crusting in the nose; injection and scarring of the pharynx; retraction of the soft palate posteriorly and upward; concentric stenosis of the nasopharynx; scarring of the anterior commissure; granuloma of the false cords, and thickening in the subglottic region with narrowing of the trachea. A diagnosis of syphilis was made clinically, and of rhinoscleroma from biopsy.

Fig. 4.—Nasal deformity from rhinoscleroma with loss of columella.

Two external applications of radium were made outside the larynx. Following this the patient disappeared from observation and died five and a half years later, probably from extension of the granulomatous process.

CASE 2.—A farmer, aged 27, residing in Alberta, Canada, a native of Russia, registered at the Mayo Clinic, April 4, 1921, with the complaint that he had been kicked in the face by a horse a year previously and a week later noticed increasing soreness and enlargement of the nose; this continued for about six months, when the nose became completely obstructed.

On examination the obstruction was found to be due to an ulcerated tumor involving the margins of the meatuses and filling the nasal fossae and nasopharynx. The soft palate was retracted posteriorly and upward. A profuse fetid mucopus

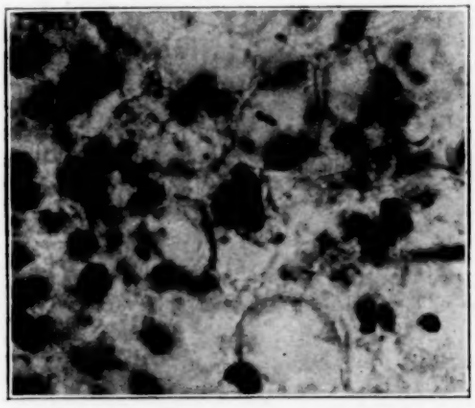


Fig. 5.—Large Mikulicz cells with intracellular diplococci; × 1,000.

was being discharged from the nose. Rhinoscleroma was suspected from the clinical picture; the diagnosis was confirmed by biopsy and culture.

Two applications of radium (200 to 400 milligram hours) were made directly into both nostrils and into the nasopharynx at intervals of about a month. For more than six years there have been no signs of infection.

CASE 3.—A laborer, aged 27, residing in Manitoba and a native of Roumania, registered, Jan. 28, 1922, with the complaint of a hard nodule that had been first noticed in the left nostril four and a half years previously. This enlarged gradually and was excised after about six months. It recurred promptly, and the anterior hard palate and superior alveolar process became enlarged. The growth was again excised, and there was prompt recurrence. Several months before admission four radium treatments had been given without much improvement.

Examination disclosed scarring of the nose downward and to the right; a small perforation of the right ala, probably due to irradiation; a large perforation of the septum; bulging to the left of the bridge of the nose; a moderately soft, nonulcerated mass involving the upper alveolar process and hard palate anteriorly; a granuloma extending down the right lateral wall of the nasopharynx and oropharynx; the pharynx injected and atrophic with a good deal of tenacious, fetid mucus, and the soft palate retracted and elevated. Rhinoscleroma was diagnosed clinically, and confirmed by biopsy and culture.

One application of radium was given in the clinic and two applications were given after the patient reached his home. The local physician reported much improvement following the last treatment. We have an unconfirmed report of the patient's death, cause unknown.

CASE 4.—A farmer, aged 35, from Alberta, Canada, a native of Roumania, registered, Dec. 2, 1926, with the complaint that he had been hoarse for five years, but that this had been more troublesome for the last three years. He had been dyspneic for four months and had lost 30 pounds (13.6 Kg.) during this time. A diagnosis of catarrh had been made.

Examination disclosed atrophic mucous membrane of the nose, nasopharynx, pharynx and larynx with marked crusting, thickening of the vocal cords, and limited abduction (50 per cent). Rhinoscleroma was suspected from the clinical picture, and the diagnosis was confirmed by culture and biopsy from the false cords.

A potassium iodide mixture was given by mouth. The patient refused to have tracheotomy performed at this time, but returned in a serious condition from respiratory obstruction and emergency tracheotomy was performed, Feb. 12, 1927. Two external applications of radium were made at intervals of six weeks; the radium was applied directly to the glottis once (178 milligram hours). When the patient was last seen, April 8, the laryngeal condition was greatly improved, the cord movements being quite normal and breathing space at least twice what it was prior to treatment.

CASE 5.—A bookkeeper, aged 26, residing and born in New Jersey, who had never been outside the United States, came to the clinic, Feb. 17, 1927, complaining of nasal discharge and deformity, sore throat, hoarseness and dyspnea. Eight years previously, foul nasal discharge with crusting and occasional epistaxis developed. Hoarseness had been progressive for the last two years but had been much worse for three months, and dyspnea was associated. The patient had lost 30 pounds (13.6 Kg.) in three years. A diagnosis of rhinoscleroma had been made elsewhere and twenty-five intravenous injections had been given.

Examination disclosed an extensive, destructive lesion of the nose, pharynx and larynx; loss of the columella and a portion of the left ala and tip of the nose, the tip being drawn down in contact with the upper lip; external part of the nose extremely hard; profuse fetid discharge; marked stenosis of both vestibules; extensive scarring of the pharynx with loss of the uvula and concentric stenosis of the nasopharynx; epiglottis firmly retracted over the stenosed larynx, and active ulceration in the nose, nasopharynx and pharynx. A tentative diagnosis of rhinoscleroma was made from the history and clinical data; the diagnosis was confirmed by biopsy and culture.

Tracheotomy showed active involvement of the tracheal wall when the trachea was opened at a level of the second cartilaginous ring. Radium was applied on several occasions, at intervals of from one month to six weeks externally over the nose, larynx and trachea and directly into the nostrils, pharynx and larynx. A potassium iodide mixture was given internally and autogenous vaccine subcutaneously. Improvement in the general condition and local lesion was striking. The patient has gained 30 pounds (13.6 Kg.) since treatment was started. The ulcerations of the nose, nasopharynx and pharynx are healed. The induration of the nose is greatly lessened. The patient breathes readily with the tracheal tube corked. The voice is much improved.

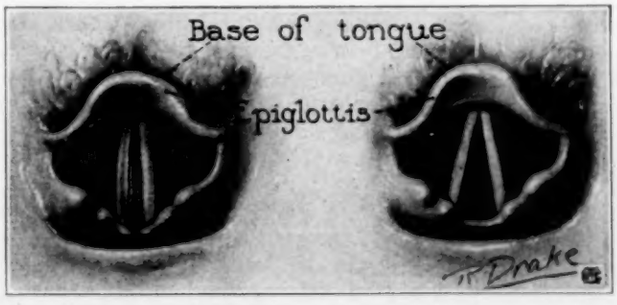


Fig. 6.—Subglottic thickening from rhinoscleroma and appearance after radium treatment.

CASE 6.—A man, a cook, aged 30, a resident of Minneapolis, born in Galicia, came to the clinic, April 18, 1927, on account of hoarseness which had developed following a "cold" four and a half years previously. He had been moderately dyspneic the first two years. "Laryngeal trouble" had been diagnosed and radium and roentgen-ray treatment had given some relief. Crusting in the nose with nasal obstruction and hoarseness had persisted.

Examination disclosed diffuse thickening of the nasal mucous membrane with crusting; firm, nodular, nonulcerated lesion of the left posterior tonsillar pillar and similar lesions involving the anterior portion of both vocal cords; diffuse injection of the mucous membrane of entire nose and throat, and free

tenacious and fetid mucoid discharge. A diagnosis was made of rhinoscleroma and confirmed by biopsy and culture.

Four external applications of radium varying from 3,000 to 4,000 milligram hours with distance and screening were given at intervals of from five to twelve weeks, chiefly over the larynx and upper portion of the trachea. Radium was also applied directly into the larynx and nose on one occasion and into the pharynx on two occasions. The actual cautery was also used inside the pharynx once. When the patient was last seen, November 18, there was no clinical evidence of the disease aside from crusting in the nose.

BACTERIOLOGIC DATA

A review of the recent literature on the cultural aspects of *Bacillus rhinoscleromatis* seems to show that most of the observations have been made on stock cultures, and on only a few of these. Consequently it was thought best to study three freshly isolated strains obtained from three of the foregoing cases.

The original studies by von Frisch consisted of culturing the organisms in sterile blood serum and aqueous humor of the eye in hanging-drop preparations. He also used the infusion gelatin which had been devised by Koch. His chief contribution was the demonstration of the organisms within the cells described by Mikulicz. Wilde,[25] in 1896, studied twenty-five cultures of various encapsulated organisms belonging to the genus, only one of which is mentioned as a strain of *Bacillus rhinoscleromatis* and that from a stock laboratory culture. This culture gave acid but did not give gas in dextrose broth and there was not any or very little acid in lactose; it failed to coagulate milk and did not give indole or gas on potato medium. Perkins,[26] in 1904, studied a culture of *Bacillus rhinoscleromatis* which did not give acid or gas in any sugar medium used. In a report which was published in 1925 he[27] classified the encapsulated gram-negative bacilli in four groups and put *Bacillus rhinoscleromatis* in the fourth group (those that did not ferment carbohydrates). Fitzgerald,[28] in 1914, studied five stock strains which were obtained from various sources. The organisms in his cultures had lost their capsules, and one of the five strains liquefied gelatin. His results with carbohydrate fermentations were so variable that he does not consider them useful in identifying a species within the group of gram-negative encapsulated bacteria. In view of our experience it is easy to understand how formation of capsules and fermentation of carbohydrates may vary in cultures that have been kept for a considerable length of time on artificial mediums. Small and Julianelle,[29] in 1923, studied twenty-seven strains of organisms belonging to the genus, one of which was a stock strain of *Bacillus rhinoscleromatis*. This culture gave acid without gas in dextrose, levulose, galactose, lactose, maltose, rhamnose, arabinose, raffinose, xylose, adonitol, mannitol, glycerin, salicin and dextrin; neither acid nor gas was produced in saccharose, dulcitol, inulin and starch. In Bergey's[30] Manual of Determinative Bacteriology, the separation of this group of organisms is based on the fermentation of carbohydrates, and *Bacillus rhinoscleromatis* is listed as producing acid and gas in dextrose and sometimes in lactose.

From the preceding it appears that the carbohydrate fermentations of this organism have been variable in the hands of different investigators. The three cultures described here were isolated between December, 1926, and April, 1927. Three series of tests were made at intervals of about a month. A culture isolated in 1922, on which a complete study was not made, showed agreement in carbohydrate fermentations, so far as they were carried out. In the study of *Bacillus rhinoscleromatis* all mediums were adjusted to a hydrogen ion concentration of approximately p_H 7.0.

Morphology.—When the organisms were grown in nutrient broth for twenty-four hours at 37 C. they appeared as nonmotile rods from 1.5 to 3 microns long by 1 micron wide with rounded ends and occurring singly or in pairs.

Stains.—The organisms were gram-negative and stained well with methylene blue (methylthionine chloride, U. S. P.). Spores were not demonstrated in either young or old cultures. Capsules were observed after twenty-four hours in cultures on nutrient agar slants; the sapsules were easily demonstrated by fixation of the smear with glacial acetic acid, before it was entirely dry, followed by carbolfuchsin stain with heating. Many of the bacteria showed bipolar staining with Gram's stain or with 2 per cent crystal violet in methyl alcohol after twenty-four hours' incubation at 37 C. in nutrient broth.

Gelatin Colonies.—In nutrient gelatin plates at room temperature (from 20 to 23 C.), visible growth was not observed after twenty-four hours. After three days small colonies (0.5 mm. in diameter) were observed which were compact and spherical or slightly irregular.

Gelatin Stab.—In stab cultures of nutrient gelatin incubated at from 20 to 23 C. there was a round nailhead appearance on the surface after three days' incubation; the growth in the stab was filiform. Liquefaction did not occur in thirty days. At 37 C., liquefaction did not occur in ten days.

Agar Colonies.—In cultures of nutrient agar incubated at 37 C., smooth, entire, round, convex, translucent and slimy colonies, 2 by 4 mm., were observed after one day. The deep colonies were lenticular and about 0.5 mm. in diameter. After three days the colonies were opaque, whitish and slimy, and varied from entire to lobate.

Nutrient Broth.—In nutrient broth cultures incubated at 37 C., after one day there was moderate clouding, ring formation, and a small amount of sediment. After two days the appearance was unchanged except for a heavier ring and more sediment. After seven days the appearance was much the same; the ring persisted, and there was not a complete pellicle over the surface.

Dextrose Broth.—In dextrose broth cultures incubated at 37 C. there was moderate clouding after one day; there was neither ring formation nor pellicle. After two days the appearance was unchanged. After four days the appearance was still unchanged. The medium was acid to methyl red (hydrogen-ion concentration from p_H 5.0 to 5.2).

Litmus Milk.—In litmus milk cultures incubated at 37 C. there was slight acidity after one, two and three days. After six days the reaction was neutral. After

25. Wilde, M.: Ueber den Bacillus pneumoniae Friedländer's und verwandte Bakterien, Centralbl. f. Bakteriol. **20:** 681-686, 1896.
26. Perkins, R. G.: Bacillus Mucosus-Capsulatus: A Study of the Group and an Attempt at Classification of the Varieties Described, J. Infect. Dis. **1:** 241-267, 1904.
27. Perkins, R. G.: Classification of Spore-Free Gram-Negative Aerobic Rods, J. Infect. Dis. **37:** 232-255 (Sept.) 1925.
28. Fitzgerald, J. G.: A Biometrical Study of the Mucous Capsulatus Group, J. Infect. Dis. **15:** 268-278, 1914.
29. Small, J. C., and Julianelle, L. A.: Biologic and Serologic Studies of Bacillus Mucosus Group, J. Infect. Dis. **32:** 456-470 (June) 1923.
30. Bergey, D. H.: Bergey's Manual of Determinative Bacteriology, ed. 2, Baltimore, William and Wilkins Company, 1925.

twelve days the reaction was neutral; curd was not present; one of the three cultures showed slight reduction of litmus.

Potato.—In cultures on potato medium after one day there was a slight transparent growth. After three days the growth was slimy and spreading; the medium was slightly darkened. Growth may not appear on potato medium unless a fairly heavy inoculation is made.

Indole.—Tests for indole were negative by both the Ehrlich and Salkowski tests after four days' incubation at 37 C. in nutrient broth.

Nitrates.—Nitrates were reduced to nitrites.

Oxygen Requirements.—The organism grows better under aerobic conditions. It grows more slowly in a deep stab than on the surface. The best growth was observed at the surface of nutrient broth. Combined oxygen can be utilized in place of atmospheric oxygen, as evidenced by the absence of a ring in the dextrose broth cultures.

Optimal Temperature.—The optimal temperature of the organism is evidently at or near 37 C.

*The Production of Acid in Sugar Mediums**

Culture from	Dextrose	Maltose	Mannite	Saccharose	Levulose	Galactose	Xylose	Arabinose	Rhamnose	Inosite	Salicin	Glycerol	Trehalose	Incubation Days
	Days Before Acid Appeared													
Case 4...	1	1	1	9	1	1	1	1	1	4	1	4	2	10
Case 5...	1	1	1	4	1	1	1	1	1	2	1	4	1	10
Case 6...	1	1	1	4	1	1	1	1	1	2	1	9	2	10

* Acid was not produced by any of the cultures in lactose, inulin, raffinose, dulcitol and dextrin.

Sugar Fermentations.—Gas was not produced in any sugar. In the table are shown the results of tests for acid in thirteen sugar mediums. All of the tests were carried out in Durham type fermentation tubes. The mediums consisted of 0.5 per cent of the various sugars in nutrient broth adjusted to a hydrogen ion concentration of p_H 7.0. Bromthymol blue (0.2 per cent alcoholic solution) was added as an indicator in the proportion of 1 cc. for each 100 cc. of medium.

The only irregularity noted in sugar fermentation was in raffinose. This sugar was acidified by all three cultures when tested in October, 1927, from six to ten months after their isolation, although three tests which had been done soon after the cultures were obtained did not show any effect on this sugar.

Since gas was not produced in the regular fermentation tubes, tests were made using unheated dextrose, levulose and galactose. The sugar solutions were sterilized by filtration and added to sterile nutrient agar in a proportion that gave the same percentage of sugar as was used in the broth tubes. Even small amounts of gas were not shown in agar stab cultures. It would seem that, as far as carbohydrate fermentation is concerned, the most important observation is the absence of gas production. When first isolated, these cultures were consistent in their action on the sugars as is shown in the table. It is probable that cultures which have been kept in stock for more than six months exhibit irregularities in their action on carbohydrates and that some of the confusion which exists in the literature may be due to the fact that few workers have had recently isolated cultures with which to work.

ABSTRACT OF DISCUSSION

DR. SHELTON WATKINS, Louisville, Ky.: Several years ago I saw a case of scleroma of the larynx and trachea. There was no evidence whatever of involvement of the upper respiratory tract. The patient was a negro, aged 21, born in Baltimore, who had not left the United States except on several short trips to South America. I believe that this is the first case reported in this country of scleroma in a native American, and, also, the only one so far recorded among us of scleroma primary in the larynx and trachea. The important points in the diagnosis were borne out; that is, extreme chronicity, absence of pain, absence of ulceration, the ivory hardness, and the typical microscopic picture, including Mikulicz's cells and the hyaline bodies of Unna. The first symptoms were present about three years before the patient was admitted to the hospital. There was no pain, either in the throat or referred from it. On examination no ulceration was seen. At autopsy the lesion was found to be chiefly below the vocal cords. The mucous membrane was grayish, irregular and much thickened, producing a marked constriction of the lumen. There was no ulceration. Also, the lesion was very hard and calcified in areas. The typical microscopic picture was found in a number of slides. The diagnosis was made by Dr. William Finney, of the pathologic department, and later was verified by Dr. William McCallum. Unfortunately, the true condition was not recognized during life, because soon after the patient entered the hospital he was found to have a 4 plus Wassermann reaction. Naturally, with a lesion like that and a positive Wassermann reaction we thought he had one of those rare cases of gumma of the larynx and trachea. Mercurial inunctions and the iodides increased the difficulty in breathing. We hesitated to give him arsphenamine treatment for fear it would produce the same result. He began to improve under rest and had much less difficulty in breathing. This misled us and we postponed a tracheotomy, which had been considered. Suddenly one night great distress in breathing developed rapidly and the patient died within about four minutes, before the house officer could get to him. We made a mistake in not performing an early tracheotomy, which would have saved his life, and, very probably, enabled us to recognize the disease.

DR. FREDERICK A. FIGI, Rochester, Minn.: I was greatly interested in Dr. Watkins' case report at the time it appeared several years ago and appreciate his discussion of this paper. Dr. W. P. Finney, who did the autopsy and microscopic studies in Dr. Watkins' case, remarked on one occasion that although he made a diagnosis of rhinoscleroma in that case, he was not convinced that such a clinical entity existed. I feel that there is very little question regarding the existence of such an entity, as the clinical picture is very definite; the Frisch bacillus can be isolated in all cases; lesions simulating those seen in rhinoscleroma have been produced in experimental animals by the injection of the bacilli, and the organism has again been recovered from these lesions. In addition, the microscopic picture is constant, although not characteristic for this condition alone.

"Saddle Bag" Thinking.—The saddle bag age of medicine has passed, but "saddle bag" thinking on the part of the profession and the public is still with us. . . . We live in an economic age, but medicine as an organized profession does not fully realize it. With billions of dollars involved in the care of the sick, the employment of economic advisers by the medical profession is almost unknown. A modern business has its statisticians and its economists surveying the past and present and preparing for the future. Medicine stumbles ahead as a great social factor led by a few far-seeing individuals, prodded by a lot of uplifters, legislators and enthusiasts and with a well developed defense complex against those changes which come to all growing things. The practice of medicine can only be fully understood by those who have lived it and yet unless the profession bestirs itself great changes in medicine will take place through the instigation and pressure of outsiders. The golden thread of human understanding and of close personal relations between doctor and patient may be left out of the new social fabric which is being woven right under our eyes.—Wilbur, R. L.: The Cost of Medical Care, *California & West. Med.*, July, 1928.

Clinical Notes, Suggestions and New Instruments

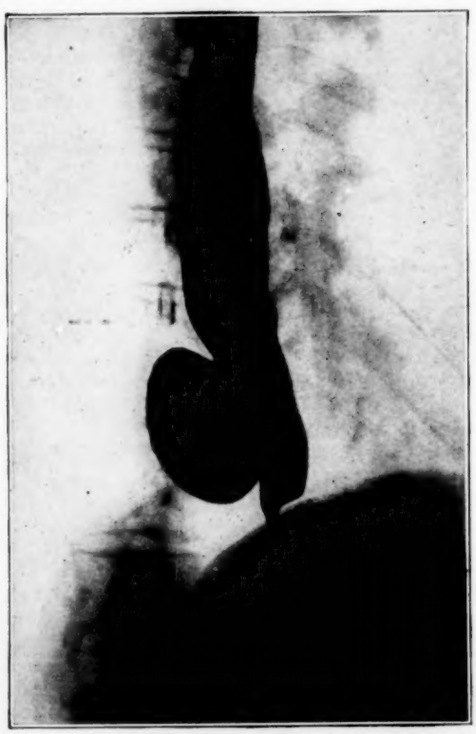
CARDIOSPASM AND CONCOMITANT ESOPHAGEAL DIVERTICULUM

JOHN H. FITZGIBBON, M.D., PORTLAND, ORE.

In a previous report,[1] a case of cardiospasm with concomitant diverticulum of the upper end of the esophagus was described. Since that time, the following case has been observed:

REPORT OF CASE

C. R., a man, aged 61, a painter and paper-hanger, was admitted to Multnomah County Hospital in January, 1926. He complained of difficulty in swallowing of four years' duration. This had developed gradually and, in his opinion, was the result of violent attacks of vomiting which occurred with lead poisoning four years previously. He had had four attacks of lead colic, the first eight years before admission to the hospital.



Cardiospasm with large diverticulum of lower end of esophagus.

Diarrhea had persisted since the last attack, and he was passing from six to eight mushy or watery stools daily. There was no visible blood and very little mucus in the stools.

A chronic cough, particularly at night, had persisted since influenza in 1918. Associated with difficulty in swallowing, there was at times a burning pain in the region of the xiphoid cartilage. This came on while eating and frequently continued for two or three hours. It was not relieved by soda. Food seemed "to stop just before going into the stomach," and was "forced into the stomach" by continued swallowing or tapping over the epigastrium. In recent years he had noticed that it took much longer than usual to eat, and said that it required "twenty minutes to eat a meal which should be eaten in ten minutes." He had learned to be careful of his diet, as he was unable to swallow meat or coarse foods, although liquids, particularly warm liquids, passed with slight difficulty.

Vomiting, which had been violent with the last attack of lead colic, then occurred irregularly and was not forceful. He occasionally vomited or regurgitated while having distress after eating, and found that the distress was relieved by regurgitation. Material regurgitated consisted of food particles mixed with mucus. Belching was common in an effort to relieve a sensation of "gas on the stomach." A gradual loss in weight accompanied dysphagia, there being a total loss of 40 pounds (18 Kg.) in five years.

In addition to conditions mentioned above, the past history included measles, chickenpox, typhoid and malaria. He had formerly used alcohol in excess but denied recent alcoholism. An epithelioma of the lower lip had been removed at the Multnomah Hospital in 1919, the submental and submaxillary lymph nodes being removed at the same time. There was no sign of recurrence.

Physical examination was essentially negative except for emaciation and tenderness over the colon. The blood Wassermann examination and other laboratory tests were negative.

X-ray examination of the chest revealed increased density of the peribronchial and hilum shadows. The esophagus was moderately dilated and was obstructed at the hiatus oesophageus. Just above the diaphragm and extending toward the right was a large oval diverticulum which retained barium in all positions, as shown in the accompanying illustration. X-ray diagnosis of cardiospasm with concomitant esophageal diverticulum was made.

Esophagoscopy was performed by Dr. Mearle C. Fox of the ear, nose and throat service. The entrance to the esophagus and its walls were normal in appearance to the level of 24 cm. from the incisors, where the mouth of a diverticulum was found. This was directed to the right. The opening into the pouch was about the caliber of a normal esophagus and its walls were of the same color. The esophagoscope was passed into the pouch to a depth of from 5 to 7 cm. A cotton tipped applicator passed into the esophagus below the diverticulum met no resistance at first, but on withdrawal was firmly grasped by a spasmodic contraction of the esophagus.

TREATMENT

Obviously, there was little to do for the diverticulum, but, after the patient had swallowed a silk thread guide, the cardia was dilated with a 6 inch Sippy air bag dilator inflated gradually to a pressure of 150 mm. of mercury. There was great improvement in swallowing during subsequent weeks while the patient was under treatment for diarrhea. Not having been seen for many months, the patient was recently sent for, and was found to have died several months before from the effects of "canned heat" taken internally.

COMMENT

This case presents many interesting features for speculation. This is particularly true from the standpoint of etiology. It seems not unlikely that the esophagus at the site of the diverticulum may have originally been weakened by adhesions from adjacent inflammatory lymph nodes, thus starting a traction diverticulum which developed pulsion characteristics as it progressed. The chronic bronchitis following influenza in 1918, and the greatly increased hilum shadows, seem to fit in with this view.

Violent vomiting associated with lead colic was no doubt an important factor in influencing herniation of the mucosa through a weakened esophageal wall. The patient's own observation seems to confirm this.

Whether the cardiospasm preceded or followed the development of the diverticulum is difficult to determine, but it is not unreasonable to assume that the diverticulum preceded the obstruction at the cardia and that the latter may have developed as a result of irritation from food retention in the diverticulum. The relatively large size of the diverticulum as compared with the moderate dilatation of the esophagus which accompanied the cardiospasm tends to strengthen this opinion.

Dessecker[2] reported eight cases of epiphrenal diverticula, cardiospasm having been associated in five. Vinson,[3] who

1. Fitzgibbon, J. H.: Cardiospasm and Concomitant Esophageal Diverticulum, J. A. M. A. **86:** 1614 (May 22) 1926.

2. Dessecker: Das epiphrenala, Pulsionsdivertikel der Speiserohre, Arch. f. klin. Chir. **128:** 236, 1924.

3. Vinson, P. P.: Cardiospasm Associated with Esophageal Diverticula, New York M. J. **117:** 540 (May 2) 1923.

reported two cases of diverticula of the middle portion of the esophagus associated with cardiospasm, felt that the diverticula could not have attained considerable size without obstruction at the cardia causing retention in the esophagus, and adding the pulsion force necessary to increase the size of the pouch.. This was no doubt an important contributing factor in the development of the diverticulum in the case reported here.

1106 Stevens Building.

THE ETIOLOGY AND TREATMENT OF PITYRIASIS ROSEA

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The etiology of pityriasis rosea has long been a subject of dispute. Up to the present time all laboratory investigations have proved valueless or even misleading. The finding of a ringworm parasite in scales is probably due to a secondary infection. The course of the disease certainly does not suggest that it is due to fungi. It will be recalled that the disease usually starts with slight evidences of sore throat and that a day or two later one large lesion appears on the hand, body or limbs. About five days later an erythematous rash develops over the trunk, and a week later lesions appear on the limbs. The disease is distinctly self-limited, lasting from three to seven weeks. The prevailing impression among dermatologists is that the disease is somewhat analogous to German measles.[1] However, the course is distinctly longer than that of the exanthems. The disease is not an uncommon one, although rarely diagnosed by the general practitioner, and tends to occur in epidemics; yet more than one case is rarely seen in a household.

A patient with a severe pityriasis rosea. The chest had been exposed to the ultraviolet ray but the legs had not.

Some years ago I was struck with the fact that it was rather unusual to find a patient with pityriasis who did not have any evidences of tonsils. This has led to a review of eighty-five consecutive cases, and the results seem worthy to put on record. The accompanying table shows the condition of the throat in these cases.

Out of forty-six cases for which the notes are complete, the throat condition was satisfactory in only two instances. One physician who has had three attacks showed marked follicular changes with each attack.

These figures would clearly seem to indicate that pityriasis rosea is much more frequent in those who have either tonsils or other marked lymphoid structures in the throat than in other persons.

Few dermatologists realize that the ultraviolet ray has a truly remarkable effect in causing the disappearance of pityriasis lesions. During the past two years I have used an air-cooled ultraviolet lamp in fifteen cases of pityriasis and have found that in each instance the lesions have disappeared after one treatment heavy enough to cause erythema. However, in view of the difficulty of determining an erythema dose it has seemed advisable to give first an experimental dose over the entire body and then to follow this in from five to seven days with a second dose of a size just sufficient to cause a slight redness. The accompanying illustration shows a patient who had had one irradiation of the chest, but whose legs had not yet been subjected to the ultraviolet ray. Before the treatment, the lesions on the body were even more severe than those on the legs. Their shadows can still be seen.

1. Wile, U. J.: Experimental Transmission of Pityriasis Rosea, Arch. Dermat. & Syph. **16**: 185 (Aug.) 1927.

Condition of Throat in Patients with Pityriasis

	Number of Cases
Tonsils completely removed, throat well	2
Recurrence of removed tonsils	3
Tonsils out, other infected lymphoid structures	6
Tonsils not removed	35
Insufficient notes	39
Total	85

CONCLUSIONS

1. Pityriasis rosea is probably due to an infection entering through either the tonsils or the other lymphoid structures of the throat.

2. By use of the ultraviolet ray, much time can be saved in the treatment of the disease.

1911 R Street.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

EPHEDRINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1928, p. 175).

Ephedrine Hydrochloride-Squibb.—A brand of ephedrine hydrochloride-N. N. R.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Ephedrine Hydrochloride-Swan-Myers (See New and Nonofficial Remedies, 1928, p. 176).

The following dosage form has been accepted:

Syrup Ephedrine Hydrochloride-Swan-Myers: Containing ephedrine hydrochloride-Swan-Myers, 0.2195 Gm., in 100 cc. (⅓ grain per fluidrachm) and alcohol 12 per cent.

POTASSIUM BISMUTH TARTRATE-D. R. L. (See New and Nonofficial Remedies, 1928, p. 110).

The following dosage form has been accepted:

Potassium Bismuth Tartrate with Butyn-D. R. L., 20 cc.: Each cc. contains potassium bismuth tartrate-D. R. L., 0.1 Gm.; butyn, 0.6 per cent; and metaphen, 0.01 per cent suspended in expressed oil of almonds.

SCARLET FEVER IMMUNITY TEST (See New and Nonofficial Remedies, 1928, p. 392).

Parke, Davis & Company, Detroit.

Scarlet Fever Streptococcus Toxin for Skin Test-P. D. & Co.—Prepared by the method of Drs. Dick under U. S. patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee, Inc. Marketed in single 1 cc. vial packages (Bio. 154) containing sufficient toxin for ten tests.

England's Insurance Act.—It would be a real boon to the insurance practitioners, to the officials, and to the insured persons, and would prevent many mistakes and misunderstandings, if some one—it would admittedly require little short of a genius—would intelligibly collate the multitude of regulations. —Maclean, Ewen: *Lancet*, July 28, 1928.

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SATURDAY, SEPTEMBER 1, 1928

SIMPLIFICATION OF INFANT FEEDING

The formulas that have been recommended from time to time for the preparation of milk mixtures to be used in infant nutrition are innumerable. To the untutored person there is "neither rhyme nor reason" in many of the suggestions on record, and even the trained physician or dietitian may often wonder what the rationale of the seemingly limitless proposals may be. A few years ago, Powers [1] of the Yale University School of Medicine performed a constructive service in attempting an evaluation of a large number of the more popular milk mixtures employed in pediatric practice in terms of the unit of physiologic currency, the calory. This is, of course, only one way of instituting comparisons from a nutritional standpoint. The percentage system and the nem of Pirquet have had some vogue; but, as Powers has remarked, although it is possible to establish a satisfactory means of comparative study of various foods on a quantitative basis, it is advisable to go further to a more fundamental unit for a common currency in infant feeding. The calory is the unit used everywhere by physiologists in the investigation of problems of nutrition. Itself a measure of energy, the calory is used constantly in metabolism studies and is also a physiologic unit. As such, it is greatly superior to the gram as the unit to which the protein, carbohydrate and fat food components may be reduced. The calory is a least common denominator of all energy-yielding food constituents and their derivatives.

The emphasis on the energy factor does not imply any undervaluation of the importance in nutrition of water, vitamins and salts, which are also food components. As Powers pointed out, not only do infant feedings of identical or similar caloric percentage pattern differ in their water, vitamin and mineral content, but also they may be unlike in the chemical and biologic values of all the various food components. In grouping milk mixtures on the basis of similar caloric constitution for the food components, this vital aspect of the nutritional problem is neither ignored nor relegated to the background; on the contrary, it is brought into prominence. Indeed, milk mixtures shorn of their water relationships and reduced to caloric expression present themselves for study not alone from the point of view of energy values but also from that of the biochemical values of the various components. The wide range of opinion among clinicians as to the effect in both health and disease of this or that form of protein, carbohydrate or fat is eloquent testimony to the fact that few data are actually established which correlate qualitative differences in food components with physiologic response. Hence, Powers concludes that the energy unit is thus perhaps not the ultimate basis for a helpful classification and accurate study of infant feedings, but just now its use would seem to be a step toward that simplicity which must prevail if progress is to be rapid in the correlation of food with nutritional status and disturbance.

Two fundamental facts must be kept in mind. The dilution of milk mixtures with water affects the calories per unit of mass, but not the percentage relationships of protein, carbohydrate and fat in the total calories. The addition to milk mixtures of an energy-yielding nutrient not only affects the total calories per unit of mass but also diminishes the proportional representation in the total calories of the protein, lactose and fat. Powers' calculations indicated that, when the multitude of milk mixtures commonly used in infant feeding are reduced to the caloric percentage formulation, many of them are essentially alike or identical excepting in concentration, degree of denaturization by cooking or souring and qualitative differences in protein, carbohydrate, fat and salts. Almost all milk mixtures may be found in one of seven groups. A great number of mixtures which experience has shown to be particularly successful in feeding infants fall into a majority group which approaches a caloric percentage pattern in which about 60 per cent of the total calories are in whole milk and 40 per cent in added carbohydrate.

The foregoing considerations indicate how involved some of the practices of the past have been. It is refreshing, therefore, to hear a more encouraging note. In an address a few months ago before the American Dietetic Association, Marriott [2] of St. Louis insisted that infant feeding is, in reality, simple but has been made unnecessarily complex through a lack of understanding of the fundamental factors involved. In the infant, he said, we have to deal with a rapidly growing individual having a large food requirement but a limited digestive capacity; a helpless individual, unable to care for or feed itself and unable to make an intelligent selection of food, ready to take any food offered, suit-

1. Powers, G. F.: Comparison and Interpretation on a Caloric Basis of the Milk Mixtures Used in Infant Feeding, Am. J. Dis. Child. **30**: 453 (Oct.) 1925.

2. Marriott, McKim: The Simplicity of Infant Feeding, J. Am. Dietet. A. **4**: 1 (June) 1928.

able or unsuitable, up to the limits of the stomach capacity, or beyond. The infant, furthermore, is peculiarly susceptible to infections, some of which, when present, are difficult to detect and to treat and exert a profound effect on the nutrition. Marriott added that, since the infant cannot choose food for itself, it is necessary to consider carefully the composition of the food in order to meet all the nutritional requirements; and, since the digestive capacity is limited, the choice of foods is necessarily limited to those which are readily digestible. Since the infant is susceptible to bacterial infections in the intestinal tract as well as elsewhere in the body, it is essential that the food be free from any bacteria capable of causing harm.

There is no need of assuming mysterious qualities of breast milk in order to explain its superiority over artificial food. It is clean, as it comes direct from producer to consumer; it contains all the necessary food elements, and when taken in amounts up to the infant's stomach capacity is digestible and supplies sufficient calories for the infant's needs. Success in artificial feeding, therefore, may be secured in varied ways. It implies that the essentials of the diet shall not be left out or furnished in inadequate amounts. The requirements for protein, mineral salts (except possibly iron) and some of the vitamins are met if the infant receives each day 1½ ounces of cow's milk per pound of expected body weight or one tenth of the body weight. The additional energy is usually furnished in the form of carbohydrate. Marriott believes that the proportion between milk and sugar is of importance, the optimal proportion being approximately 11:1. Too little sugar results, he contends, in a slow gain in weight and a tendency to constipation, and involves the necessity of taking excessive amounts of fat and protein to make up the necessary calories. Too large an amount of sugar in proportion to the milk may lead to a condition of rapid gain in weight, hydremia and lack of resistance to infection, these effects being due to a deficiency of the milk as much as to an excess of carbohydrate; for when there is too much sugar present the appetite is satisfied and the caloric needs are met without at the same time meeting the needs of the body for the other constituents of the milk.

Today the supplementary supply of vitamins, of orange juice and of cod liver oil or their equivalents is rarely overlooked. Marriott is an advocate of boiled milk, which eliminates the greatest bacterial menaces without impairing the digestibility and nutritive value of the food. He is one of the group of American pediatricians who have advocated elimination of the influence of the buffer substances in cow's milk by neutralization with some form of acid. The appearance of alimentary symptoms in infants frequently leads to frantic efforts to "change the formula" or withhold nourishment. Against rash practices of this sort, Marriott has uttered a protest. He insists that, if simple mixtures are being supplied in a rational way, when digestive difficulties occur they will not be due to the food, if the qualifications mentioned have been met, but will be due to some extraneous conditions, most likely infections, which should be sought for and remedied; the food need not usually be changed. This is, indeed, a constructive outlook.

THE CARBON MONOXIDE HAZARD OF THE AUTOMOBILE

Formerly the dangers of carbon monoxide poisoning were confined to occasional exposure to the gas in mines or about blast furnaces, or to asphyxiation with illuminating gas. With the increased use of "water gas," which contains about 40 per cent of carbon monoxide in contrast to the concentration of from 4 to 8 per cent in the old fashioned coal gas, the fatalities have increased. The danger of leaks from the use of inferior rubber hose for gas supply connections has become so serious that the employment of such material is wisely prohibited in some places. However, the principal danger must now be assigned to the exhaust gas from the modern internal combustion engine, of which the automobile is the omnipresent example. The mounting records of deaths in closed places, notably garages, in which the atmosphere is vitiated with exhaust gases have aroused nation-wide concern.

It is generally stated that an admixture of more than 1 part of carbon monoxide in 10,000 parts of air (or 0.01 per cent) constitutes a health hazard. Five years ago Henderson and Haggard [1] of Yale University made physicians aware of the possibility of the existence of chronic or repeated carbon monoxide poisoning, to be looked for not only in the usual places, such as dwellings with leaky gas pipes, but also in streets where motor traffic was very dense. Subsequent reports by Wilson, Gates, Owen and Dawson [2] seemed to establish further the evidence of a definite street risk of repeated or chronic slight carbon monoxide anoxemia.

The most recent survey was undertaken by experts of the United States Public Health Service.[3] Fourteen of the largest cities in the country, having a combined population of more than 19,000,000, were visited and studied at places presumably indicating the maximum hazard from automobile exhaust gas that may exist today in metropolitan thoroughfares. The average of 141 tests made in city streets at peak hours of traffic showed a contamination of 0.8 part of carbon monoxide in 10,000 parts of air. Only 24 per cent of all the street samples had more than 1 part of carbon monoxide in 10,000 of air, and in only one location, a covered

1. Henderson, Yandell; and Haggard, H. W.: Health Hazard from Automobile Exhaust Gas in City Streets, Garages and Repair Shops, J. A. M. A. **81**: 385 (Aug. 4) 1923.
2. Wilson, Elizabeth D.; Gates, Irene; Owen, H. R., and Dawson, W. T.: Street Risk of Carbon Monoxide Poisoning, J. A. M. A. **87**: 319 (July 31) 1926.
3. Bloomfield, J. J., and Isbell, H. S.: The Problem of Automobile Exhaust Gas in Streets and Repair Shops of Large Cities, Pub. Health Rep. **43**: 750 (March 30) 1928.

passageway, was there as much as 2 parts in 10,000. Samples taken inside of autobusses yielded even lower concentrations of carbon monoxide gas. According to these investigators, the figures for street air, when viewed in the light of present-day standards of exposure to carbon monoxide, do not reveal the existence of a health hazard from this source in our city streets. The only person who may possibly be exposed to a health hazard from inhaling street air containing automobile exhaust gas is the traffic officer. This potential hazard may be minimized by diminishing the duration of exposure at the most congested traffic stations. The tests of Bloomfield and Isbell [8] indicate, further, that the great danger to life is unquestionably in the small private garage containing one or two cars. Under any circumstances the discharge of an automobile exhaust into a roofed enclosure should be regarded as a hazardous act.

THE ACTIVE PRINCIPLE OF TUBERCULIN

It is thirty-seven years since Robert Koch,[1] the pioneer bacteriologist, announced his discovery that a specific reaction occurs on the introduction of extracts or other products of the tubercle bacillus into the bodies of tuberculous animals. The phenomena involved have since become familiar to all students of the subject. Normal persons fail to respond to the introduction of such materials, whereas the tuberculous react locally, focally and generally. In animals infected experimentally with tuberculosis, an acute inflammation develops at the locus of injection and around all foci of disease, and there are signs of general intoxication with rise in temperature. The substances eliciting the reaction were grouped under the designation "tuberculin," and the specific response was named the "tuberculin reaction."

Koch himself gained the impression that the active principle belongs in the chemical category of the proteins, but this view has not been accepted universally. The active principle is at least associated with proteins, for it corresponds with or accompanies the latter in respect to such properties as solubility, precipitability, and diffusibility through membranes. Every attempt to separate from the protein in tuberculin an active substance had failed. The problem of the nature of tuberculin has of late enlisted in particular the interest of investigators at the Otho S. A. Sprague Memorial Institute at the University of Chicago. It became evident, as one of them has written, that the water-soluble protein in tuberculin is similar in many of its properties to ovalbumin, and the possibility of crystallizing it presented itself, in spite of the fact that no crystalline protein of bacterial origin had been reported in the literature. Crystallization is one of the first and most important criteria of purification of any compound and seemed therefore worth much effort.

Success has at length been attained. The long ventured assumption that the specifically active substance in so-called tuberculin is merely an infinitesimal amount of some highly potent factor attached to the protein no longer seems plausible since the completion of Seibert's [2] investigations. The evidence presented, that a water-soluble protein of the nature of an albumin has been obtained from tuberculin in crystalline form and that this crystalline protein has undergone five, ten and even fourteen recrystallizations without loss in its specific biologic activity, leaves little further doubt that the active principle in this case is protein. The protein is a product formed directly by the tubercle bacillus, since all of the tuberculin used was made in a nonprotein medium. The credit which Dr. Seibert's undertaking deserves is enhanced by the fact that the purification of proteins is one of the most difficult chemical tasks there is. Only about a dozen proteins have so far been crystallized, and not one of these is from a bacterial source. Apparently the crystallized tuberculin, which is extremely potent, is unstable and easily becomes denatured. Such denaturization is recognized, first, by the facts that the protein will no longer crystallize and that its solubility is changed, and, secondly, by a loss in biologic activity. This instability explains the small yield of crystals obtained and also the great losses in activity during the isolation of the protein.

In reference to these investigations, Long [3] has reemphasized the fact, appreciated since Koch's time, that a fundamental difference exists between the active principle of tuberculin and the active principles of the true exotoxins. The latter, as exemplified typically in diphtheria toxin, appear to represent true secretions or excretions from the bacteria elaborating them. Extracts of diphtheria bacilli do not contain appreciable amounts of diphtheria toxin. Extracts of recently grown tubercle bacilli, on the other hand, are rich in the active principle of tuberculin, and the active substance found in the culture medium appears to arise by extraction, possibly associated with autolysis, of the growing bacilli. Seibert has pointed out also that, if the specifically toxic factor in tuberculin is a protein, we are justified in interpreting the tuberculin reaction as an allergic protein reaction, and warranted in hoping for prophylactic and remedial results by truly immunologic methods. The purity and chemical integrity of the protein may be important factors in such experiments. Therefore, as Seibert concludes, the isolation from tuberculin of a specifically active protein in a state of chemical purity encourages similarly directed effort in the case of other bacteria.

1. Koch, Robert: Deutsche med. Wchnschr. **17**: 101, 1891.

2. Seibert, Florence B.: The Chemical Composition of the Active Principle of Tuberculin: X. The Isolation in Crystalline Form and Identification of the Active Principle of Tuberculin, Am. Rev. Tuberc. **17**: 402 (April) 1928.

3. Long, E. R., in Jordan and Falk: The Newer Knowledge of Bacteriology and Immunology, University of Chicago Press, 1928, p. 1023.

Current Comment

BACTERIOLOGY OF WATER SUPPLIES

Almost half of two issues [1] of the *Journal of Infectious Diseases* were devoted recently to an exhaustive consideration of important phases of sanitary water analysis by Greer, Noble, Tonney and others of the department of health of Chicago. In view of the general use of the *B. coli* group of bacteria as an indication of water pollution and its dependence on lactose fermentation for ready detection by current methods, the necessity of further and fuller knowledge of other lactose fermenting bacteria is obvious. These contributions should help to clear up the confusion incident to the use of standard tests which at times render rational disinfection of public water supplies difficult or impossible. Organisms such as *B. welchii* in water supplies ferment lactose, thereby confusing the *B. coli* test. This may lead to unreasonably excessive dosage of chlorine being applied to the public water supply and materially affecting its potability by an obnoxious taste. On the other hand, fecal streptococci may suppress the growth of *B. coli,* thus preventing a positive confirmatory test and concealing the presence of dangerous pollution. Concurrently, Noble [2] of the same group of workers has devised a new medium and pour plate method by means of which these disturbing lactose fermenting bacteria may be eliminated or readily distinguished. This medium is said to give a definite *B. coli* index in forty-eight hours, whereas the older methods generally require four or five days to secure equally reliable data. At the same time it yields information as to the type of *B. coli* present. These researches appear to be a constructive advance in the technical procedure of examination of water supplies and, if confirmed, should be welcomed by health officials. To epidemiologists, interesting data are given as to the pathogenicity of these strains. The authors conclude that: "The experimental evidence presented tends to show that *Cl. welchii* may cause diarrhea when taken by mouth. All strains of the Friedländer group and of *Ps. pyocyaneus* isolated from water proved to be pathogenic for mice."

EMOTIONAL LEUKOCYTOSIS

The formulation of a "physiology of the emotions" has not been attempted until comparatively recent times. It has, of course, long been recognized that bodily functions are unmistakably affected by emotional stress. The blush and pallor noted in everyday life as the result of unexpected personal experiences other than purely physical stimuli leave no doubt that the circulation often responds to changes in mental states. The quickening of the pulse in the midst of excitement is by no means the only indication of physiologic changes under such circumstances. There are incidents in life that call forth beads of perspiration in the absence of external heat; the parched tongue may accompany a shiver of apprehension. Cannon and his collaborators at the Medical School of Harvard University have endeavored to implicate the suprarenals and the sympathetic nervous system in the familiar and likewise the less obvious reactions of the organism to such emotions as fear and rage. The reactions evoked tend in general to produce functional responses that are likely to benefit the individual involved. There may be an outpouring of epinephrine into the blood stream with consequent changes in the blood flow; blood sugar may be mobilized for the possibilities of extreme muscular effort. Izquierdo and Cannon [1] recently reported that emotional excitement for relatively brief periods is followed quickly by a pronounced rise in the number of red corpuscles of the blood; and now Menkin [2] has announced from the same laboratory that emotional stimulation of a normal animal leads to relative mononucleosis which is maintained for a brief period after the excitement. It is significant that the emotional polycythemia fails to occur when the animal is sympathectomized and when the functions of the spleen are disturbed. The malpighian follicles of this organ are known to form a considerable number of lymphocytes. Indeed, with the lymphoid tissue of the intestine they constitute two of the most important sites of lymphoid tissue in the body. Menkin therefore regards it as plausible that, as a result of sympathetic activation emotionally or otherwise, splenic contractions force out into the general circulation not only an increased number of erythrocytes but also mononuclear leukocytes which are found in abundance in the spleen pulp. In this connection one recalls the emotional leukocytosis sometimes reported in patients who are in a state of fear and apprehension preceding an operation. The rapid disappearance of the leukocytes after emotional excitement is not so readily explained. Perhaps the answer is to be found in the observation that lymphocytes may leave not only the blood stream but also the body, finding their way out to the surfaces of mucous membranes, particularly along the gastro-intestinal tract.

TEA IMPORTATIONS DECLINE

From the physician's point of view, the problem of the use of tea and coffee in the diet seems to be concerned primarily with the methylated purines, notably caffeine, which they contain. The interdiction of these beverages has become common in the formulation of dietaries for children. For example, in a recent field study of certain Massachusetts rural towns,[3] to ascertain what relationship, if any, could be demonstrated between the dietary habits of children of elementary school age and their state of health, in scoring the diets a deduction of points was made for the regular use of either coffee or tea. This is undoubtedly in accord with current nutritional advices for adolescents. Furthermore, the consumption of substitutes for tea and coffee has grown in this country. One wonders, therefore, whether these national tendencies bear any relation to

1. The Sanitary Significance of Lactose-Fermenting Bacteria Not Belonging to the B. Coli Group, J. Infect. Dis. **42**: 501-524 (May), 525-574 (June) 1928.
2. Noble, R. E.: Comparative Colon-Aerogenes Indices of Water and Sewage, J. Am. Water Works A. **19**: 733 (June) 1928.

1. Izquierdo, J. J., and Cannon, W. B.: Am. J. Physiol. **84**: 545 (April) 1928.
2. Menkin, M.: Emotional Relative Mononucleosis, Am. J. Physiol. **85**: 489 (July) 1928.
3. Davies, Esther S.: The Food Consumption of Rural School Children in Relation to Their Health, Bull. 241, Massachusetts Agricultural Experimental Station, March, 1928.

the decline in tea importations recently reported by the U. S. Department of Agriculture.[4] The official statistics indicate that, despite continued growth in population, nearly six and one-half million pounds less tea was imported during the fiscal year ended June 30, 1928, than during the previous year. This represents a decrease of 7 per cent. In contrast with this is the governmental announcement that caffeine-containing drinks other than tea and coffee are now being used extensively with meals at lunch counters, cafeterias and similar eating places. Especially is this true where lunches are served at soda fountains in drug stores, cigar stores, and other places. Since a large proportion of tea utilized in the United States is served in the form of iced tea, it is believed that the use at meal times of drinks to which caffeine has been added has been another cause of the falling off in the consumption of tea. Those who have hopefully anticipated a decrease in the "caffeinization" of the nation will be further disconcerted by the information that of several million pounds of tea waste, tea siftings and tea sweepings imported under government regulation "for manufacturing purposes," practically all are reported to be converted into caffeine, a large portion of which is used in the preparation of various caffeinated soft drinks. It would seem almost as if the methylated purines were being converted in status in an insidious manner from a drug to a food.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Dr. Samuel B. Richards, Victorville, has been appointed health officer of San Bernardino County to succeed Dr. Emil W. Meyer, San Bernardino. —— Dr. Frederick E. Ewing, Oakland, has been elected a trustee of the Knox College (Galesburg, Ill.) Alumni Association.——Dr. Edwin W. Bathurst has been appointed city health officer of Etna.

Gifts for Research to Cottage Hospital.—The board of directors of the Cottage Hospital, Santa Barbara, announced, July 27, gifts totaling more than half a million dollars for research work. Edward L. Harkness, George O. Knapp and Max C. Fleischmann each gave $200,000, Edward Lowe, $5,000, and E. Palmer Gavitt, a new building to be devoted to research. The gifts of Mr. Harkness and Mr. Knapp are to be invested and the income only used for research. The Fleischmann donation, after providing for certain improvements to buildings, will be invested and only the income used.

Society News.—Dr. Robert L. Richards, University of California Medical School, San Francisco, addressed the Fresno County Medical Society, Fresno, recently, on "Mental Growth and Ills of Childhood."——The Santa Barbara County Medical Society was addressed recently by Dr. Sven R. Lokrantz, medical director, Los Angeles public schools, on the health program in the schools, especially the treatment of heart disease in children.——The Ventura County Medical Society was addressed recently by Dr. Harry E. Henderson, Santa Barbara, on atypical pulmonary tuberculosis in children.

Dr. Cutter Appointed Acting Dean of Southern California.—The president of the University of Southern California announced, August 20, that Dr. William D. Cutter, New York, had been appointed acting dean of the school of medicine, which will open, September 17 (The Journal, April 7, p. 1126, and May 26, p. 1716). Dr. Cutter graduated from Johns Hopkins University School of Medicine in 1905; he practiced in Arizona four years, and was professor of physiology and pharmacology at the University of Georgia Medical Department from 1911 to 1919, and secretary of the New York State Board of Medical Examiners until 1923, when he became dean of the New York Post-Graduate Medical School and Hospital, where he has been until accepting the appointment at the University of Southern California.

Quack Assessed Thirty Thousand Dollars.—A jury at Glendale, according to California papers, recently awarded a $30,000 judgment to an 11-year-old girl against Lloyd E. Tilbury, who was charged with malpractice. Tilbury holds a diploma from the College of Osteopathic Physicians and Surgeons and a drugless practitioner's certificate for California, issued in 1921. About four years ago Tilbury was advertising his "School of Radio Active Electronic Medicine," and he was, evidently, one of the numerous imitators of the late super-quack, Albert Abrams. According to the newspaper report of the present case, the little girl went to Tilbury for treatment of an injury to her foot. Tilbury is said to have connected a radio to her leg "to find out the vibration of her ailment," and then to have connected the radio to various fruits, to find what particular fruit had a vibration corresponding to that of the child. The little girl was then fed that fruit, with the result that she nearly died from lack of treatment.

DELAWARE

Medical-Arts Building at Wilmington.—A six-story building has been completed at Delaware Avenue and Jefferson Street, Wilmington, for the exclusive use of the medical and dental professions. About 80 per cent of the space was leased before construction was started. It is owned by the Wilmington Medical Arts Building, Inc. The officers and directors are Drs. Ira Burns, John H. Mullin, William O. LaMotte, Victor D. Washburn and Robert E. Ellegood, Charles R. Jefferis, Jr., D.D.S., Walter O. Stack, D.D.S., and Messrs. Lee Paschall and Bruce Lowenberg.

Increase in Mental Patients.—A census of state hospitals for mental disease, made by the U. S. Department of Commerce with the cooperation of the hospitals, showed that in 1927 the Delaware State Hospital had 129 first admissions as compared with ninety-six in 1922. The increase in the number of first admissions between 1922 and 1927 was relatively greater than the growth of the state's population, the first admissions in 1927 being 53.1 per hundred thousand of population as compared with 41.9 in 1922. The number of first admissions in 1927, however, showed a considerable decrease as compared to 1926. The total number of mental patients under treatment in the Delaware State Hospital, Jan. 1, 1928, was 579 as compared with 441, Jan. 1, 1910, and this increase was relatively greater than the increase of the population of the state. The increase in mental patients was especially rapid between 1923 and 1926, but there has been a decrease since the latter year. The number of patients in the Delaware Colony for Mental Defectives has increased from 26, Jan. 1, 1922, to 115, Jan. 1, 1928, and the ratio of such patients per hundred thousand of general population has increased steadily in that period from 11.4 to 47.3. The number of first admissions to the institution was thirty-two during 1927 and twenty-four in 1922. The ratio of first admissions per hundred thousand of population was 10.5 in 1922 and 13.2 in 1927.

ILLINOIS

Dr. Wipperman Goes to New Orleans.—Dr. Paul W. Wipperman has resigned as superintendent of the Decatur and Macon County Hospital, Decatur, to accept the superintendency of the Touro Infirmary, New Orleans, October 1. Dr. Wipperman has been at Decatur about five years, going there from the Veterans' Bureau hospital at Jefferson Barracks, Mo. He was president of the Illinois Hospital Association in 1926 and 1927.

Public Welfare Study Courses.—Two days previous to the Illinois Conference on Public Welfare, Quincy, September

4. Press Service, Aug. 10, 1928, U. S. Department of Agriculture, Office of Information.

24-25, a series of study courses will be given to supply social workers with a more intensive study of their problems than the regular meeting of the conference will provide. The enrolment will be limited and open only to persons already engaged in or directly concerned in social work. Each of the six courses will consist of four sessions of one and one-half hours. One person cannot take more than two courses and the cost of each course will be $3. Among the instructors will be Dr. Herman M. Adler, director, Institute for Juvenile Research, Chicago. The courses will be on (1) problems within the children's institution; (2) legal aspects of social work; (3) elements of social case work; (4) training and supervision of mental defectives for adjustment in the community; (5) mental factors in social case work, and (6) recreation and group leadership. Application should be made to Mary E. Murphy, director, Elizabeth McCormick Memorial Fund, 848 North Dearborn Street, Chicago.

Chicago

Gifts to University.—Among other gifts to the University of Chicago announced by the board of trustees are $25,000 from the Milbank Fund, New York, for research on infantile paralysis under the direction of Edwin O. Jordan, Ph.D., and Dr. Ludvig Hektoen; $449.60 from Dr. Lester E. Frankenthal to cover purchases for the medical library, and $5,000 from Mr. Frederick Bode and $1,000 from Mr. Herman H. Hettler for the Frank Billings Medical Clinic Fund.

Many Scholarships Available.—The trustees of the La Verne Noyes Scholarship Foundation, 2500 Roosevelt Road, have announced an additional list of twenty-seven schools where World War veterans and their children may obtain free tuition, making in all sixty schools from which applicants for scholarships may choose. Depending on the needs of the applicant, all, or part, tuition is paid by the foundation for general courses, medical, engineering, teaching and other special branches. Nurses who served in the World War and their children are eligible. In all, 1,200 scholarships are offered. Mr. Noyes for many years was active in the affairs of the Chicago Academy of Sciences in Lincoln Park. In 1918 he established a scholarship foundation of $2,000,000 at the University of Chicago. The trustees now are Lewis C. Walker, Frederick L. Dole and Joseph J. Fraser.

Chicago's Water Supply.—Chicago's water is obtained from Lake Michigan through six intakes from 2 to 6 miles from shore, whence it is brought to eleven pumping stations through about 70 miles of tunnels. A new tunnel system is under construction, about 4 miles having been dug already under the lake and Chicago Avenue through solid rock 200 feet below the surface. According to the *American Journal of Public Health*, the largest water pumping station in the world was placed in operation in Chicago during the last year as well as the most completely equipped experimental water filtration plant, where experiments on the treatment and filtration of Lake Michigan water are being conducted in preparation for the installation of large filtration plants. At present the water of Chicago is not filtered, and when the lake is stormy it contains much sediment. The only treatment given the lake water now is chlorine at the pumping stations. The per capita consumption of water in Chicago is about 300 gallons a day, which is considered excessive. Water is delivered to the people from the pumping stations through about 3,500 miles of cast iron pipe. The Chicago water works system to date has cost about $110,000,000. When the filtration plants are completed to filter the entire supply, the investment will be probably $150,000,000. The first water tunnel was completed in 1867 and it is still in service.

INDIANA

Typhoid Outbreak at Southport.—Sixteen cases of typhoid and two deaths were reported at Southport, a suburb of Indianapolis, August 16. The outbreak is reported to have followed a party at which the members drank water from an open well. The state board of health found the well polluted and directed the town officials to obtain the service of a competent engineer to make plans for an adequate water supply at once.

Society News.—The Fourth District Medical Society will hold its next annual meeting at Greensburg under the presidency of Dr. Eden T. Riley of that city.——The officers of the Ninth District Medical Society held a "Boone County revival meeting" at Lebanon, June 26, which was attended by about sixty physicians. The occasion was also characterized as a "pep party." Practically every county society in the district sent representatives as well as the state association. There was a chicken dinner at the Ulen Country Club and five-minute talks on organization were given by spokesmen from each county society. The meeting closed with a talk by Dr. Robert M. Moore, Indianapolis, on "Drug Therapy in Heart Disease."—— Dr. Roland E. Wynne read a paper on "Examining the Patient" before the Lawrence County Medical Society, July 20.—— Dr. Nicholas A. Kremer, Madison, addressed the Jefferson County Medical Society, recently, on "Acute Infectious Exanthems."

Increase in Mental Patients.—A census of feebleminded and epileptic patients in state institutions in 1927, made by the U. S. Department of Commerce with the cooperation of the state hospitals, showed a total of 298 first admissions in Indiana to the Farm Colony for Feebleminded, the School for Feebleminded Youth and the Village for Epileptics, as compared with 226 first admissions in 1922. The increase in first admissions between 1922 and 1927 was relatively greater than the growth in the state's population, the first admissions in 1927 amounting to 9.5 per hundred thousand of population as compared with 7.5 in 1922. There were altogether 2,541 patients present in Indiana on Jan. 1, 1928, as compared with 1,885 on Jan. 1, 1922. This increase was much greater relatively than the increase in the population of the state, as on Jan. 1, 1928, there were 80.3 patients under care to each hundred thousand of population, as compared with 63.1 patients per hundred thousand of population on Jan. 1, 1922. The number of patients under state care has steadily increased from 1910 to 1928 and of the total number of patients present in these hospitals, Jan. 1, 1928, there were 1,408 males and 1,133 females.

State Medical Meeting at Gary.—The annual meeting of the Indiana State Medical Association will be at Gary, Lake County, September 26-28, under the presidency of Dr. George R. Daniels, Marion. The Lake County Medical Society has arranged a special program of entertainment, one feature of which will be a trip on flat cars through the steel mills with the general superintendent of the Illinois Steel Corporation, W. P. Gleason, as escort, Wednesday afternoon. For that reason the annual golf tournament will be Wednesday morning and the meeting of the delegates at 6:30 p. m. The scientific program has been arranged especially for the general practitioner. All meetings will be general, the sections meeting only to elect officers and conduct routine business. The ladies will have a special trip through the steel mills and the dune region, teas, bridge and theater parties. The guest speakers will be Drs. William H. Ordway, assistant medical director, Metropolitan Life Insurance Company, Mount McGregor, New York, on tuberculosis; Palmer Findley, Omaha, president, American Association of Obstetricians, Gynecologists and Abdominal Surgeons, "Pelvic Peritonitis"; Henry F. Helmholz, Rochester, Minn., "Pediatrics"; Udo J. Wile, Ann Arbor, Mich., "Syphilis"; there will be a symposium on diabetes by Drs. Joseph C. Beck, Harry S. Gradle and Sidney Strauss, all of Chicago.

KENTUCKY

Dr. Rush Resigns.—Dr. James E. Rush, head of the department and professor of hygiene and public health, University of Kentucky, Lexington, has resigned. According to the Lexington *Herald*, Drs. W. Walter Zwick and D. Stanton Ross have also resigned from the department of hygiene.

Increase in Mental Patients.—The three state hospitals of Kentucky had a total of 1,209 first admissions during the year 1927 as compared with 1,169 during 1922, according to a census made by the U. S. Department of Commerce with the cooperation of the state department charities and corrections. The increase in the first admissions to state hospitals between these years kept pace with the increase in the state's population. The first admissions numbered 47.6 per hundred thousand of general population in the years 1927 and 1922. The number of patients under treatment in these hospitals has increased steadily from 3,487, Jan. 1, 1910, to 4,973, Jan. 1, 1928. The ratio of such patients per hundred thousand of general population increased during this period from 152.3 to 195.3. Of the total number of patients present on the latter date there were 2,703 males and 2,270 females. The figures for 1927 and 1928 are preliminary and subject to correction (THE JOURNAL, June 23, p. 2040).

State Medical Meeting at Richmond.—The seventy-eighth annual meeting of the Kentucky State Medical Association will be held in the university building of the Eastern Kentucky State Normal School, Richmond, September 10-13, under the presidency of Dr. Robert Julian Estill, Lexington. There will be clinical and roentgen-ray demonstrations of the diagnosis and treatment of Colles' fracture, Pott's fracture and supracondular fracture of the humerus. Among the speakers on the scientific program will be Drs. Irwin H. Cutler, Louisville, on "Urologic Problems in General Practice"; George

Purdy, New Liberty, "Review and Suggestions on Prevention and Treatment of Tuberculosis"; William A. Weldon, Glasgow, "The Eye in Relation to Headache"; Guy P. Grigsby, Louisville, "Chronic Appendicitis"; Austin F. Finley, Madisonville, "Management of Normal Labor"; Henry Kennon Dunham, Cincinnati, "Symptoms of Sinus Infection Simulating Pulmonary Tuberculosis"; Fred W. Rankin, Rochester, Minn., "Management of Exophthalmic Goiters," and F. P. Allen, Lexington, "Fixing the Responsibility for Physical and Nutritional Defects in School Children." The oration in medicine will be given by Dr. Walter S. Wyatt, Lexington, and the oration in surgery by Dr. Raymond M. Evans, Louisville. Golf tournaments and other entertainment have been arranged.

MASSACHUSETTS

New Hospital Dedicated in Boston.—The new 180 bed Beth Israel Hospital on Brookline Avenue, Boston, around the corner from Harvard Medical School, was dedicated, August 1, and a few days later began to receive patients. It is a general hospital equipped for teaching and research, with a pathologic and medical research laboratory, each under the direction of a full-time physician who is associated with the faculty of Harvard Medical School. The outpatient department has ten clinics and is capable of serving about 20,000 patients a year. There are basal metabolism and electrocardiographic laboratories, an animal research department and an extensive roentgen-ray department. The group of building occupies about two thirds of the tract belonging to the hospital. The new institution is the result of an ideal of service formed five years ago by a group of citizens. The rich and poor generously contributed to make it possible. The president is Albert A. Ginsberg; the superintendent, Dr. Charles F. Wilinsky, who with Drs. Milton J. Rosenau, A. Warren Stearns, Harry Linenthal and George H. Bigelow was among the speakers at the dedication. Following the exercises the public, attended by interns and nurses, was invited to inspect the buildings. The *New England Medical Journal* says the hospital will stand as the contribution of the Jewish people of this section to the advancement of medicine in this country. It will be open to patients regardless of race or religion.

Pies and the Somerville Outbreak.—About 143 employees of three industrial plants in Somerville and Charlestown became ill, July 16, following lunch, which had been prepared by a firm operating a chain of restaurants and delivered to the plants in individual boxes. It seems to have been proved, according to the *New England Medical Journal,* that chocolate cream pie was responsible for the outbreak, as every one who ate it became sick, as well as about 170 employees of various restaurants in the chain. The pie appeared good and was palatable. To determine which part of the lunch was responsible, a physician, in making the investigation, ate each article separately and then waited for developments, reserving the pie to the last. He was taken down with the same symptoms that characterized the outbreak. About a third of the persons affected required hospital care.

MICHIGAN

Personal.—Dr. Marshall L. Bacon, Colon, is retiring from practice and will reside with his son in Lawrence. Dr. Bacon has been in practice about forty years.

Society News.—The Oakland County Medical Society held a golf tournament at the Indianwood Golf and Country Club, Orion, August 16. Dr. Grover C. Penberthy, associate professor of surgery, Detroit College of Medicine and Surgery, addressed the evening meeting on "Appendicitis in Children."

Correction—Executive Secretary Appointed.—The data pertaining to the former service of Mr. E. E. Valentini noted in The Journal, August 11, page 404, were in part erroneous and should have been as follows: Mr. Valentini served with the Seventy-Eighth Division and other organizations during the World War, and later as assistant military attaché of the United States legation in Switzerland, the United States embassy in Spain, and the United States legations in Portugal and Cuba. He is at present a major in the reserve corps, assigned to the Assistant Chief of Staff, G-2, Washington, D. C. Mr. Valentini was a first lieutenant with the Seventy-Eighth Division and not a major as previously stated.

Increase in Mental Patients—Ratio Decreases.—The first admissions of mental patients to the five state hospitals of Michigan during 1927 totaled 1,288, as compared to 1,236 in 1922, according to a census made by the U. S. Department of Commerce with the cooperation of the state welfare department. The increase in first admissions, however, between these years was relatively smaller than the increase in the state's population; the first admissions in 1927 numbered 28.7 per hundred thousand of population, as compared with 31.5 in 1922. The total number of mental patients in these hospitals has steadily increased, however, from 5,846, Jan. 1, 1910, to 7,937, Jan. 1, 1928, but the ratio of such patients per hundred thousand during this period decreased from 208 to 174.6. Of the patients present on the latter date there were 4,437 males and 3,500 females. The figures for 1927 and 1928 are preliminary and subject to correction.

NEBRASKA

Athletics in Grade Schools—Report.—The council of the Omaha-Douglas County Medical Society has endorsed the report of a committee appointed to consider and investigate the problem of interscholastic athletics in the grade schools. The members of the committee were Drs. Herman von W. Schulte, Arthur D. Dunn and Joseph A. Henske. The report was to the effect that the practice was ill advised. The report is now in the hands of the board of education of Omaha, which took up the problem last fall.

Personal.—Wayne Waddell, a junior in the University of Nebraska College of Medicine, and son of Dr. James C. Waddell of Beatrice, won the $50 prize of the Nebraska Tuberculosis Association for his pathologic exhibit at the meeting of the state medical association at Hastings; the exhibit was of the heart, with special reference to the coronary circulation. ——Dr. Frederick J. Wearne, Omaha, has been elected president of the Omaha Triangle Club.——Dr. Charles H. Breuer, Lincoln, has retired from practice.——Dr. Howard W. Quirk, after twenty-three years' practice at Crete, has sold his hospital and returned to Cleveland, Ohio, where he formerly practiced.

Society News.—At the annual meeting of the Elkhorn County Medical Society, Norfolk, July 18, the patients at the state hospital undergoing malaria treatment for neurosyphilis were exhibited. A number, it is said, have been restored to their families and are able to pursue useful occupations. Among the papers presented were "Some Unfortunate Experiences in Country Practice" by Dr. Fred G. Dewey, Coleridge, and "Management of the Seriously Sick Infant" by Dr. Ernest S. Wegner, Lincoln.——The quarterly meeting of the Cedar-Dakota, Dixon-Thurston and Wayne Counties Medical Society was in the nature of a clinic at which a variety of cases was presented. After the meeting the ladies spread a fine luncheon under the trees on the hospital lawn.

NEW YORK

New York City

Two Weeks of Graduate Instruction.—Among the foreign speakers to address the first Graduate Fortnight to be held under the auspices of the Academy of Medicine, October 1-14, will be Dr. Vittorio Putti of Bologna, Italy, and Sir Edward Farquhar Buzzard of Oxford, England. The general subject for the fortnight is the problem of aging and old age. There will be about forty-five speakers from a number of cities, special lectures and demonstrations in the teaching hospitals, evening sessions also, and no charge for attendance at any of the meetings (The Journal, August 4, p. 328).

Giving Cards to Fakers.—Physicians of this city have been annoyed by having their names forged to checks by a man who requests an appointment for a physical examination but who has not the time to wait when he calls at the office, so he requests and obtains the physician's card as he hurries away presumably to return again. He does not return, and in a few days banks, summer resorts and other places get in touch with the doctor concerning checks which have been returned. The faker forges the name of a physician to the check and identifies himself by means of the doctor's card.

Courses for Teachers of Handicapped Children.—Teachers College of Columbia University announces that a course in methods of teaching lip reading to deafened children will be given during the winter session in cooperation with the New York League for the Hard of Hearing; among the instructors will be Drs. Wendell C. Phillips, former President of the

American Medical Association, and Thomas D. Wood. During the spring session, a course will be given on methods of teaching in sight conservation classes in cooperation with the National Society for the Prevention of Blindness. A special sight conservation class will be developed as a teaching laboratory for this course. Among the instructors will be Dr. Benjamin Franklin Royer and well known ophthalmologists.

Analysis of Motor Deaths.—The safety bureau of the city police department has made an analysis of automobile accidents of the first half of the year. The report shows that many of the accidents were preventable. According to the New York *Times* there were 166 deaths and 4,424 injuries due to crossing the street at places other than the crosswalks; twenty-three persons were killed and 842 injured while crossing streets against the traffic lights, and eight killed and 125 injured by standing or walking in the roadway. Downright carelessness is considered the cause of nine deaths and 170 injuries of people who came out from behind parked automobiles, of two killed and fifty-six hurt in coming from behind a street car into the path of an automobile, and of four killed and 424 injured while riding bicycles in a careless manner. Collisions of motor vehicles caused forty-two deaths and 5,781 injuries. It appears that unwillingness on the part of both motorist and pedestrian to obey traffic rules explicitly is chiefly responsible for the deaths and injuries. The campaign of safety being conducted in the schools by the police department has improved the situation as it affects children. Each month a detailed report of accidents to children is read in the classrooms, and obedience to signals is emphasized. Last year in the same period there were 209 children killed, whereas this year the number was 168, although during the interval the number of cars nearly doubled and the population increased almost 200,000. New York had 18.2 fatalities per hundred thousand of population in the year ending July 14, 1928, while the general average of seventy-seven large cities of the country was 21.8.

OHIO

Society News.—Dr. George W. Crile, Cleveland, addressed the Knox County Medical Society, Mount Vernon, July 26, on "The Factors Which Control End-Results of Operations on the Gallbladder and Thyroid Gland."——A dinner was given, August 2, by the Toledo Public Health Association in honor of the physicians who volunteered their services at the Sam Davis health camp.——Dr. Harold H. Wagner, Dayton, read a paper on "Endocervicitis and Malignancy" before the Greene County Medical Society, August 2.——The Cincinnati Department of Health has opened child welfare stations in the twelve public school buildings for physical examinations, instruction and observation, and they will remain open until September 7.

Personal.—Dr. Oscar M. Craven, for several years health officer of Springfield, has resigned, effective September 1, and will go to Cincinnati to reside.——Dr. Albert Graeme Mitchell has been elected chairman, and Dr. Emerson A. North vice chairman of a council on clinics and dispensaries of the Public Health Federation of Cincinnati.——Dr. Walter W. Brand has been elected president of the Torch Club of Toledo.——Dr. Albert H. Freiberg, president elect of the state medical society, addressed the Kiwanis Club of Cincinnati, recently, on advance in medical science. Dr. Freiberg has been abroad on a tour of medical centers.——Dr. Ralph R. Harris, Columbus, has been appointed clinic diagnostician by the Muskingum County Public Health Council to succeed Dr. Casper H. Benson, who resigned after several years' service.——Dr. Leslie L. Bigelow, retiring president of the state medical society, was selected as official delegate from the American Medical Association to the annual meeting of the British Medical Association; he sailed in June. Dr. Bigelow expects to remain abroad a year in advanced study with several European physicians.——Dr. John J. R. MacLeod, professor of physiology, University of Aberdeen, Scotland, was awarded the honorary degree of doctor of laws by Western Reserve University, Cleveland, where he was formerly a professor in the medical school.——Dr. Martin H. Fischer, professor and head of the department of physiology, University of Cincinnati College of Medicine, addressed the annual banquet of Phi Beta Kappa recently on "Scholarship and Main Street."——Dr. George W. Crile, Cleveland, gave an illustrated lecture before the graduating class of Case School of Applied Science on "Researches Into the Nature of Living Processes."——Dr. Wingate Todd, Cleveland, is a member of the board of managers of the Brush Foundation, recently established in the interests of race betterment by a gift of $500,000 from Charles F. Brush as a memorial to his son.——E. H. Boyce, Columbus, has assumed charge of the laboratory work at Jane Lamb Memorial Hospital, Clinton, Iowa.

OREGON

Society News.—At the annual meeting of the Pacific Coast Roentgen Ray Society, June 22, Dr. Maurice F. Dwyer, Seattle, among others, discussed the diagnosis of benign gastric tumors.——Dr. Carl J. Bartlett, Baker, recently won two silver cups, a medal and a silver plate at the state trap shoot at Klamath Falls.——The hospital to be operated in connection with the Louise Home for Girls on Barker Road was dedicated, June 29. The funds for the $60,000 institution were provided by the state, various county courts and private citizens.

State Medical Meeting at Portland.—The Oregon State Medical Society will hold its fifty-fourth annual meeting at Portland, September 20-22. Clinics at various hospitals and the meeting of the house of delegates comprise the program for the first forenoon, and the annual golf tournament for the first afternoon. The annual banquet will be the evening of the second day. The women's auxiliary holds its annual meeting at this time. There will be an exhibition of art works of Oregon physicians. On the second and third days will be the presentation of scientific papers by members of the society. A public meeting will be held the evening of the first day on the subject "Keeping Fit." There will be a demonstration of periodic health examinations, lantern slides and motion pictures.

WISCONSIN

German University Cancels Medical Degree.—The faculty of the University of Würzburg, Germany, in September, 1927, declared null and void the medical diploma issued to William Valdimar Dubin, Oct. 31, 1925. It was subsequently found that Dubin does not possess the necessary preliminary education and that his graduation was based on incorrect statements and presuppositions. Dubin is reported to have applied to the examining boards of four states in the United States for license to practice but was consistently refused licensure.

Society News.—A report of the state board of health, July 6, indicated that the recent outbreak of paratyphoid at Beloit amounted to 124 cases and to numerous cases in other nearby towns (THE JOURNAL, June 9, p. 1880).——The Wisconsin Memorial Hospital at the state medical school, Madison, will construct a new occupational therapy building which will be ready in September.——Dr. Albert R. Tormey, Madison, addressed the Richland County Medical Society, July 3, on infections of the hand, illustrated with moving pictures.——Dr. David A. Horner, Chicago, recently addressed the Rock County Medical Society on obstetrics.——Dr. Arthur A. Pleyte, Milwaukee, of the Wisconsin Anti-Tuberculosis Association, exhibited moving pictures recently before the Walworth County Medical Society on the method of chest examination.

Personal.—Dr. Ellis F. Swarthout has been appointed city physician of Kenosha to succeed Dr. Otto W. McClusky, resigned.——Dr. Florence E. MacInnis, a 1928 graduate, has been appointed to the staff of the Wisconsin Anti-Tuberculosis Association.——Dr. Charles Egan, Highland, celebrated his eightieth birthday in June, at which time he was "hale and hearty," and still in the practice of medicine.——Drs. Carl S. Williamson, formerly of Little Rock, Ark., and Elverse M. Jordon and Ralph L. Troup, both formerly of Rochester, Minn., joined the Bellin Clinic, Green Bay, to head departments.——In addition to other bequests the late Dr. Joseph Schneider, Milwaukee, left $271,000 to the University of Wurtzburg, Germany.——Warren K. Stratman-Thomas, Ph.D., research pharmacologist, University of Wisconsin, Madison, sailed, August 2, for the Belgian Congo to study the effect of certain drugs in the treatment of sleeping sickness.

GENERAL

Society News.—The American Chemical Society will hold its seventy-sixth annual meeting at Swampscott, Mass., September 10-14. Many of the addresses, particularly those in the divisions of medicinal chemistry, organic chemistry, water sewage and sanitation chemistry, and industrial and engineering chemistry, will be of interest to physicians. Attendance at meetings is limited to registered persons. Headquarters will be at the New Ocean House.

Anesthetists Present Bust of Morton to Massachusetts General Hospital.—At the fifth annual meeting of the Eastern Society of Anaesthetists, Boston, October 8-12, a bronze bust of W. T. G. Morton will be presented to the Massachusetts General Hospital, in which institution the first demonstration of an operation under ether anesthesia was performed. The Canadian Society of Anaesthetists will meet in joint session. There will be four days of clinics, laboratory demonstrations and scientific papers. The secretary is Dr. Charles J. Wells, 1932 South Salina Street, Syracuse, N. Y.

Too Many Drug Stores—Council Recommended.—Charles W. Johnson, Ph.D., president of the American Pharmaceutical Association and dean of the College of Pharmacy, University of Washington, Seattle, is reported to have told the delegates at the national convention in Portland, Maine, August 22, that the low requirements and ease whereby persons may be licensed to practice pharmacy have resulted in too many drug stores in the United States. He urged the creation of a council on pharmaceutic education to demand of the association of colleges and boards of pharmacy that the standards of the profession be advanced.

Work of American Women's Hospitals.—The most important work of the American Women's Hospitals for the last five years has been done in Greece in serving the 1,500,000 outcasts from Turkey who are struggling to establish homes. Hospitals and clinics have been opened and closed as the needs changed from one locality to another. The hospitals were inspected recently by the chairman of a committee of the Medical Women's National Association, Dr. Esther C. P. Lovejoy, and the director of the hospitals in Greece, Dr. Effie R. Graff, to determine what institutions could be closed in view of a scarcity of funds. There is a hospital at Xanthi, a community of 70,000 persons, and clinics in outlying villages conducted with the help of refugee physicians and nurses. The mayor of Xanthi and the governor of the district urgently requested that the care of the sick be continued another two years during which time they would plan, if possible, to take over the hospital. At New Mudania, where an effort is being made to settle about 300,000 of the refugees, the only hospital is that of the American Women's Hospitals. Dr. Lilla Ridout is in charge in this district. The largest undertaking of the American Women's Hospitals in Greece is at Kokinia, where Dr. Ruth A. Parmelee is in charge, but much of the clinical work for two years has been done with the help of refugee physicians and nurses. It will be necessary, it is said, to work here for another two years. Clinics are held in the outlying villages, and a general health service and an outpatient and maternity department are maintained in connection with the hospitals. The Refugee Settlement Commission helps support the different medical centers in Greece. The American Women's Hospital service primarily, however, is maintained by the generosity of American people supplemented by gifts of persons in the field in which the work is conducted. A summary of the work in Greece in 1927, as given by Dr. Lovejoy, shows a total of 45,719 patients cared for, of whom 4,539 were hospital patients. The American Women's Hospitals maintained also fifty free beds for sick refugees in Constantinople and contributed to a baby station conducted by Turkish women. Albania needs the service of the American Women's Hospitals, but lack of funds has made its continuance impossible, and the personnel is to be transferred to Greece. Other work of this organization includes a clinic in Tokyo, Japan, in cooperation with the Baptist mission, the construction of the children's section of the Skoplje Hospital, in Serbia, and the cooperative work, established at Levallois-Perret, in France, during the World War, which is still being carri d on.

LATIN AMERICA

Mexico Bars Certain "Patent Medicines" from Mails.—THE JOURNAL learns that the U. S. Post Office Department reports that the Mexican government has prohibited the use of the regular and parcel post mails to various proprietary medicines, among which are:

Dr. Debouzy's Pills
Pinkham's Blood Purifier
H. Schiffman's Asthmador
Dr. Richards' Bacalaol
Stillman's Bella Aurora Cream
Saiz de Carlos
Dr. Nelson's Chocolate Emulsion
Dr. Grant's Grantillas
McCoy's Compound Cod Liver Tablets
Dr. Ochoa's Anti-Malarial Tablets
Dr. Ayer's Cathartic Pills
Veleas Restorative Tablets
Boxberger's "Kissing" Tablets for Reducing
Thiocolina
Dr. Miles' Tonic

CORRECTION

Schools of Chiropractic and Naturopathy.—In a report on Schools of Chiropractic and Naturopathy, an investigator employed by the American Medical Association said, in referring to the American School of Naturopathy and the American School of Chiropractic, that "the dean, whose name is Gershanek, is deaf, nervous and thick-headed!" Mr. Gershanek properly takes exception to that portion of the statement which says that he is thick-headed. THE JOURNAL wishes to apologize for the publication of this statement.

Government Services

Army Personals

Col. John H. Allen on completion of his present foreign service in the Hawaiian department will proceed to Chicago for duty as instructor for the Illinois National Guard. Major Homer L. Conner is relieved from duty at William Beaumont General Hospital, El Paso, and assigned to Fort Benning, Georgia. Capt. Ralph E. Henry is relieved from duty at Fort Sam Houston and assigned to duty at Fort Thomas, Kentucky. Major Gouverneur V. Emerson is relieved from duty at the Walter Reed General Hospital and assigned to duty at Fort Sheridan, Illinois. Major William G. Guthrie is relieved from duty at Fort Huachuca, Arizona, and assigned to duty at Fort Bliss, Texas. Capt. Clyde C. Johnston is relieved from duty at Fort Bliss and assigned to Selfridge Field, Michigan, for duty. Capt. Lewis A. Lavanture has been relieved from Fort Thomas, Kentucky, and assigned to duty at Fort Sam Houston. Major Paul W. Gibson has been relieved from duty at the office of the surgeon general and assigned to duty with the first medical regiment, Carlisle Barracks, Pennsylvania. Capt. William D. Fleming is relieved from duty at the army medical school and detailed to duty as student at the Massachusetts Institute of Technology, Cambridge. Major Charles G. Souder is relieved from duty at Walter Reed General Hospital, effective on completion of his course of instruction at Johns Hopkins University, and assigned to duty at headquarters, first corps area, Boston, effective after completion of temporary duty at Carlisle Barracks, Pennsylvania, and Fort Monmouth, New Jersey. Contract Surg. Harry Burns has been assigned to duty at Fort Des Moines, Iowa, as of June 13. Capt. Malcolm C. Grow was relieved from Fort Lewis, Washington, and will proceed by boat to New York, then to Wright Field, Dayton, Ohio, for duty. Major Charles L. Banks, having been found incapacitated for active duty on account of disability incident to the service, his retirement has been announced. Major Haskett L. Conner has been ordered to Fort Huachuca, Arizona, for duty. Capt. Robert Malcolm has been ordered to Fort Moultrie, South Carolina, for duty.

U. S. Public Health Service

Prof. Carl Voegtlin, while in Europe, is to proceed to various medical centers in connection with investigations of radium. Asst. Surg. Milton A. Gilmore has been relieved from duty at Portland, Maine, and assigned to the marine hospital, Stapleton, N. Y. Surg. Edward Francis and Prof. Charles W. Stiles were directed to proceed to Ithaca, N. Y., to deliver addresses before the Fourth International Entomological Congress at Cornell University, August 12-18. Surg. Friench Simpson has been relieved from duty at Mobile, Ala., and assigned to duty in charge of quarantine immigration and relief activities of Tampa, Fla. Surg. David J. Prather, now at Warsaw, Poland, has been directed to represent the U. S. Public Health Service at the International Conference for Medical Science as Applied to Workmen's Accidents and Occupational Diseases at Budapest, Hungary, September 3-9. Surg. Ralph E. Porter has been relieved from duty at Glasgow, Scotland, and assigned to the marine hospital, Boston. Surg. Dana E. Robinson was directed to proceed from Naples, Italy, to Rome to attend the Sixth International Conference on Tuberculosis, September 25-27. Asst. Surg. G. L. Dunnahoo has been relieved from duty at Ellis Island and assigned to the marine hospital, Portland, Maine. Asst. Surg. Addison C. Grimes has been relieved from duty at the marine hospital, New York, and assigned to duty at the marine hospital, Key West, Fla. Surg. David C. Turnipseed, Jr., has been relieved from duty at the quarantine station, New Orleans, and assigned to Spokane, Wash., in connection with the supervision and control of communicable diseases among the Indians.

Graduate Work for Physicians of Veterans' Bureau

The first course of graduate instruction for physicians of the U. S. Veterans' Bureau to be conducted at the diagnostic centers of the bureau at Washington, D. C., and Palo Alto, Calif., has been arranged and the following have been selected to take the course: Drs. Edward K. Allis, Clarence H. Denser, Leonard Raftery, Thaddeus S. Troy and Lewis A. Walker at Washington; and Drs. Robert C. Cook, Clarke B. Devine, Theodore O. Morris, John A. Thurston, Jr., and Louis H. Webb at Palo Alto.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 4, 1928.

The Tetra-Ethyl Lead Inquiry: American View Endorsed

In view of the alarming statements in the press, the committee has issued an interim report with the following conclusion: "Having very carefully considered the experimental work done in the United States in regard to the use of ethyl petrol, and the evidence which we have taken, and having had the advantage of discussing the matter with Surgeon General Cumming and Dr. Leake of the United States Public Health Service, we have come to the conclusion that the findings of the United States government committee were justified. In our opinion the further experience since that committee reported has supported their conclusion that there were no reasons for prohibiting the use of ethyl petrol."

Although there is no evidence to show that the use of ethyl gasoline as a motor fuel involves more dangers to health than the use of ordinary gasoline, the committee thinks that, for the time being, the precautions indicated in the regulations suggested by the United States committee are desirable. In particular, it emphasizes the warning that ethyl gasoline should be used only as a motor fuel and not for such purposes as cooking and cleaning. No regulations have actually been made in the United States as regards the distribution of ethyl gasoline, but careful observance of the regulations recommended in regard to notices to the public—the labeling of cans and pumps, the distribution of leaflets, and the dyeing of the substance red as an additional check against its use otherwise than as a motor fuel—has been secured by the terms of the contracts between the proprietors of the fuel and the retailers. Sales in this country are governed in the same way, and the committee does not desire to recommend any legislative action so long as the terms of the contract are maintained. It enjoins adequate ventilation of all garages, whether or not ethyl gasoline is used, as it considers the danger from carbon monoxide in an unventilated garage as very serious.

Maternity and Child Welfare

In his presidential address to the conference on maternity and infant welfare, arranged by the National Association for the Prevention of Infant Mortality and the Central Council for Infant and Child Welfare, Sir George Newman, chief medical officer, ministry of health, said that the advance in state social services during the last thirty years had been enormous. The association had helped to raise in England the dignity and value of motherhood. Their critics said that their work was resulting in an undue increase in an already overcrowded population, and was helping to keep alive the unfit. No doubt some unfit children were being saved; but how could they deviate from the task they had set themselves: to make human life safer in England, to make it larger, better and nobler? First they must win survival and then find their way out of the problem of the dangers and difficulties of the defective child. No one knew better than he what difficulties surrounded the endeavor to rear an imperial race if a strain of inferiority were introduced which was going to lower the mental and physical standards. The race could be built up only on the mother and the child. It might be right to control life or prevent its origin, but the association was founded to extend the frontiers of life and make childbirth safe, both for mother and for child. They had to rear a great race of English mothers if they desired a great race of English youth in the next generation. In two generations their effects would bear fruit. There were four directions in which he would like to see progress made. They should steadily continue the attack on preventable morbidity and mortality among mothers and children; concentrate on a fuller social understanding of such morbidity and mortality; develop the care of children between 2 and 5 years of age, and attack the great field of maternal mortality. Whenever a mother died there should be a suitable inquiry as to why she had died.

Dr. Beckwith Whitehouse, in a paper on the value of organization in the reduction of maternal morbidity, said that the essential factors in the attainment of a low maternal morbidity rate were that the trained nurse midwife should be recognized as the most suitable attendant for all normal obstetric cases; antenatal supervision should be recognized as the duty of physicians and not of midwives, and the decision as to when a case is normal or abnormal should be left with a physician; antenatal centers should be made available in all areas, at which physicians may attend and see their own patients as well as those submitted by the midwives; antenatal centers should provide sterilized obstetric outfits; panels of obstetric specialists or consultants should be instituted to provide expert opinion either at antenatal clinics or at a patient's home, if required by a physician, and inpatient maternity departments should be available in all hospitals and infirmaries for the investigation of difficult antenatal problems and the management of grave obstetric complications.

Maternity and Infant Welfare

At a conference on maternity and infant welfare held at the Guildhall, Mr. Eardley Holland, obstetric and gynecologic surgeon to the London Hospital and the City of London Maternity Hospital, gave figures showing that, as a killing condition, childbirth ranked third in the diseases attacking women of childbearing age. Tuberculosis accounted every year for nearly 12,000 women of that age, and organic heart disease for 4,000; next came childbirth with 3,000 deaths every year, and fourth and fifth came cancer and pneumonia. "Our own efforts in this country to improve this state of affairs," said he, "have been without any effect at all. . . . I don't wonder at their being truly futile, because they have started in the wrong direction." He believed that a large proportion of painful maternity cases requiring special assistance were due to the influence of the emotion of fear. The prayer which was inculcated by the church "for all women laboring with child, sick persons, and young children" is read every Sunday and heard by many thousands of women. Probably 2.5 women in every thousand would always be doomed to die in childbirth. "We have no chance in this country of getting the figure lower than that." Little would be done in reducing the death rate among mothers until the Scandinavian system of training midwives in big maternity hospitals under obstetric experts was adopted. At present we had a thousand and one little midwifery training centers, and he believed the training was unsatisfactory. Midwifery was a great art and a great craft, and every midwife should be an educated woman and an expert in her subject, so that she could be left in entire charge.

Dr. R. Veitch Clark, health officer for Manchester, thought that the low sunlight records in that city accounted in some measure for the maternal mortality there, as lack of sunlight was one of the causes of rickets, which often produced a condition that resulted in maternal mortality. Dr. R. A. Lyster, health officer for Hampshire, said that the high mortality rate among illegitimate children—said to be double that of legitimate children—could be very much modified if some of the violent social animosity on the subject could be broken down. Fair play was not being given to the unmarried mother. Her position was worse in England than in almost any other country except certain states of America, where religious bigotry and fanaticism were even stronger than here.

PARIS

(From Our Regular Correspondent)

July 18, 1928.

The International Congress on Child Welfare

The International Congress on Child Welfare was held in Paris, July 8-12, and was attended by a large number of French and foreign representatives. It was organized by la Ligue des Sociétés de la Croix-Rouge, l'Association internationale pour la protection de l'Enfance, l'Union internationale pour la protection de l'enfance du premier âge, l'Union internationale de secours aux enfants, and le Comité national de l'Enfance. M. Paul Strauss, former minister, was president of the congress, and Dr. Lesage, member of the Academy of Medicine, served as general secretary. It was held the same week and in the same section of the city as three other French congresses discussing similar problems: Congrès d'assistance publique et privée, with M. Rondel as chairman; Congrès des habitations à bon marché, with M. Henri Sellier as chairman, and Congrès du "Service social," with M. Sand as chairman. The contributions of the four congresses were combined in one common exhibit. The Congress of Child Welfare had selected five chief topics for discussion, which were treated in papers of some length and awakened real interest. The papers were published in both French and English, and corresponded to the work of the special sections. The maternity section discussed *maisons maternelles,* or maternity homes and retreats for pregnant women and nursing mothers, with Dr. Trillat, agrégé professor of the Faculté de médecine de Lyon as the principal speaker, and with papers on special subjects by Miss Halford of England, and Madame Dr. Marthe Ehrlich of Poland. The section on early childhood dealt with a comparative study of the best means of promoting breast feeding, with the principal paper presented by Professor Lereboullet of Paris and special papers presented by Dr. Matija Ambrosiee, Serbia; Professor Brandt, Sweden; Professor Cacade, Italy; Professor de Groer, Poland; Dr. Growski, Poland; Dr. Helen MacMurchy, Canada, and Dr. S. Ver, Greece. The section on the second period of childhood occupied itself with the organization of open-air establishments for children. The chief speakers were Dr. Dufestel of France, for the medical point of view; A. Ferrière of Switzerland, for the pedagogic side, and Dr. Dequidt for the presentation on the vacation colonies. Among the speakers on special topics were: M. Demazeures, Belgium; Dr. Kita, Japan; Professor Lampadarios, Greece; M. Lemonier, France; Miss Margaret MacMillan, England; Dr. Eduardo Masip, Spain; Miss Mary Murphy, United States, and Prof. Mario Ragazzi, Italy. Madame Mascart gave a hygienic study on the pupil. Another section presented a paper on social service, the topic being "The Guiding Conceptions of Social Service in Infant Welfare." The principal speaker on this topic was Miss Grace Albott of Washington, with the presentation of special topics by Dr. Gonsalès Alvarez, Spain; Mlle. Haye, Netherlands; M. Von Kock, Norway; Madame Mulle, Belgium; Professor Morquio, South America; Rev. S. C. Pringle, England; Miss Hester Viney, England. The final section took up the subject of unfortunate and neglected children, and discussed the practical functioning of juvenile courts. The chief paper was presented by M. Donnedieu de Vabres, and the subordinate topics were considered by Prof. Ugo Conti, Italy; M. G. T. de Jongh, the Netherlands; M. A. Komorowky, Poland; Madame Dr. Mende, Germany; M. Edouard Neymark, Poland; M. Wets, Belgium, and M. de Casabianca, France. All resolutions proposed by the chief speakers were adopted as being of practical value.

Death of Dr. Pottevin

The death of Dr. Pottevin has been announced. He was *chef de service* at the Institut Pasteur, professor of industrial hygiene at the Conservatoire des Arts et Métiers, and had also been senator. For several years, he had been director of the Office international d'hygiène publique.

The Ministry of Labor and Public Health

M. André Fallières, former minister of labor and public health, has left the government service, and M. Loucheur is his successor. M. Poincaré has created a special subdepartment of public health within the ministry of labor and public health, and has entrusted the new post to M. Oberkirch of Alsace.

Increase in the Number of Students at the Faculté de médecine de Paris

Professor Roger, dean of the Faculté de médecine de Paris, states in his annual report that the number of medical students continues to increase. The total number of such students for the last three school years was: 1924-1925, 2,510; 1925-1926, 2,515, and 1926-1927, 2,676. The number of students matriculating for the first time was: 1924-1925, Frenchmen, 533, foreigners, 203, total, 736; 1925-1926, Frenchmen, 561, foreingers, 237, total, 798; 1926-1927, Frenchmen, 607, foreigners, 295, total, 902. The constant increase in the number of foreigners proves that the medical instruction at the University of Paris continues to be highly esteemed. The dean remarks, however, that the progress of the students is somewhat hampered by the large numbers. The expenditures of the university are considerably increased and are not compensated for by the receipts, for the tuition paid by the students remains the same, but tuition and dues are already so high that the authorities hesitate to increase them, although they do not correspond to the increased expenditures of the Faculté for the increase in its personnel and the constant increase in salaries with reference to the increased cost of living.

An Epidemic of Amebic Dysentery

In the departmental psychopathic hospital in Lafond, near Rochelle, an epidemic of amebic dysentery broke out in 1925 and continued unchecked for two years, with 108 cases and twenty-eight deaths. Investigation revealed that it had been brought in by interned patients who had contracted the disease in the colonies and remained carriers of amebic cysts. The sanitary condition of the institution in general was likewise bad. Colibacillosis prevailed endemically, and paratyphoid was frequent. The situation was easy to explain. The drinking water was piped from a well located in fissured lime rock and contaminated by infiltrations of surface water. In the vicinity was an area used for the cultivation of vegetables and supplied with night soil from the cesspools of the hospital, which had no sewers. The contamination through the well water and the vegetables, many of which were eaten raw, was plainly shown by experimentation. The purification of the water was the next step. After a comparative study of the various systems, the administration adopted the method of Philippe Bureau-Varilla termed verdunization (javellization), since it was employed for the first time during the siege of Verdun, to purify the drinking water of the city, and especially that used by the army. It consists in adding to the water a certain amount of a solution of sodium hypochlorite, or so-called Javel solution, so calculated as to correspond to 0.0001 Gm. of free chlorine per liter of water. This amount is sufficient for water that is clear. It can be increased to 0.0002 Gm. for water that is turbid or known to be badly contaminated, without giving the water a disagreeable taste or necessitating the removal of the excess chlorine. The sanitary condition of the hospital improved at once with the purification of the water supply. Not only the dysentery disappeared but also the colibacillosis and the paratyphoid. Physiologic control experiments, however, showed that the percentage of chlorine employed was not sufficient to destroy the ameba, but the experiments were performed, in the laboratory at Rochelle, with the indigenous ameba, which is acclimated and very resistant. The colonies of *Ameba histolytica,* however, readily disappeared.

MADRID

(From Our Regular Correspondent)

Aug. 4, 1928.

Influence of Genital Glands on Development

Professor Champy, a disciple of Professor Gley of Paris, recently gave a lecture before the Faculty of Medicine of Madrid on the influence of the genital glands on development. The complex problem of growth may be divided into two groups: a harmonious growth by which the animal increases in size until it reaches a maximum determined by the species of the animal and its individual conditions; and a morphogenetic development by which a definite shape is taken which finally comes to be the form peculiar to an adult individual. These developments are difficult to study in the human being because of their imbrication, but they may be followed in the tadpole as well as in other animals. The tadpole, for instance, will stop developing if amino-acids are taken from its food, and will develop more rapidly if they are fed in increased amount with lysin. Two tadpoles fed in this manner will thus differ markedly in size but will be alike in form. The phenomenon of harmonious development is not well known, although it is manifested by physicochemical processes. Two technics may be followed in investigating it: the culture of the tissues, and the study of regeneration. In birds, the development of the genital glands is regulated in such a way that they bear a constant relation to the weight of the animal. If in a rooster, for instance, one testis is removed, the other will hypertrophy to replace the loss, thus maintaining the weight of the gland in the same proportion to the weight of the rooster. On the other hand, if testicular tissue is grafted into a male frog a destructive change may be observed after a few days in the frog's natural testes as the proper ratio between testicular tissue and the weight of the animal is again being established. Thus there is a law of balance in these ratios similar to the one that regulates chemical reactions. During growth the thyroid gland has an importance recognized by all, although it acts mainly on certain parts of the body. The study of its effects is apparently a simple one because it seems to depend on only one substance, while the effects of the genital glands seem to depend on several substances. The rooster and the hen are differentiated mainly by the comb and the feathers; if the ovaries of a hen are removed, the hen will assume some characteristics similar to the rooster, which tends to show that sexual organs have an inhibitory action on the development of the characteristics of the other sex. These points are mentioned to show the influence of the sexual glands on development. It is a complex problem: one that was not suspected until physiologists began to study their development and function.

Dr. Cubero Receives the Medal of Work

The minister of public works has conferred the highly valued medal of work upon Dr. F. Cubero, who is connected with the Hospital de San Juan de Diosde Madrid.

Malaria in the Treatment of Paresis

Drs. Vallejo and Gonzalez Pinto of the Psychiatric Clinic of Ciempozuelos have made a detailed study of patients subjected to the treatment with malaria, and the reasons for its failure in certain patients. They assert that, of the cases in which it failed, the majority were hopeless to start with, the patients having been sent to the sanatorium to die; but the treatment of private patients was successful when begun immediately after the onset of the disease. In seventy-three cases of paresis in which enough time has elapsed for results to be considered, six patients (9.53 per cent) can continue to work under favorable conditions, twelve (19.05 per cent) can live at home, mix freely in society, and earn their living by work, and nine (14.28 per cent) can be considered cured. In twenty-eight cases (44.44 per cent) the method was a failure and has produced eight deaths (12.69 per cent). The total remission of all sorts is 42.86 per cent, almost half the patients being benefited.

The Meeting Against Immorality

A meeting was recently held in Madrid to consider the subject of immorality. The minister of the interior, Martinez Anido, was quoted as saying that the government had confiscated 200,000 quesionable pamphlets and magazines for examination by the attorney general. Mr. Melendez of Valencia estimated that 2,000,000 immoral pieces of printed matter are in circulation in Spain. Dr. Castro said that there were 35,000 fewer marriages in Spain in 1925 than in 1902, and attributed the diminution in the number of births mainly to this. He said further, however, that there was danger of a greater diminution in birth rate if moral conditions were not improved by giving women sufficient remuneration for their work. In this connection he cautioned the heads of families to pay more attention to the morals of their sons, and advised regulations for the vice centers. Mr. Sierra, lawyer of Bilbao, asked that all films be censored before being shown in the moving picture theaters.

Dr. Marañón Honored

Having been invited by the president of Cuba, Dr. Marañón, accompanied by Drs. Florestán Aguilar, Poyales and Calatayud y Costa, attended the Medical Congress in Havana. He delivered several lectures on sexology, all of which were well received. As a result, the medical fraternity of Madrid has honored Dr. Marañón for his success as a member of the Faculty of Medicine. In this they were aided by Drs. M. Labbé of Paris, L. Bloom of Strasbourg, and F. Fonseca of Lisbon.

BUDAPEST

(From Our Regular Correspondent)

July 28, 1928.

The Work of the Royal Medical Society in 1927-1928

Dr. Lehócky Semmelweiss, chief secretary, in his annual report said that the prominent event of the year was the celebration of the ninetieth anniversary of the society. A convention meeting was attended by physicians from all parts of the country, and from some foreign societies. Besides the convention, twenty-nine scientific sessions, two general meetings, and three meetings of the board of directors were held. At the scientific meetings, forty-eight addresses were given with the exhibition of forty-nine patients. Of these, eighty were of practical importance while seventeen were of a theoretical character. Complaints had been made that the ordinary sessions did not embrace all the special branches of medicine. Dr. Semmelweiss attributed this to the great number of scientific societies that deal with the special branches of medicine; these, he pointed out, absorbed the most prominent members of certain branches at their special congresses. Among the lecturers giving addresses on the course of last year were distinguished foreign guests from the western states, and also from the so-called succession states. A special event in the history of the society will be the Koranyi centenary, the preparation of which has been entrusted to a special committee.

An Exhibition of Quackery

The National Medical Association, in collaboration with the directors of the Popular Hygienic Museum, is arranging an Exhibition at Pecs to be opened, September 8, which will show the progress of medical science as compared with superstitions now prevailing in the different regions of the country. A particular section will be devoted to dependable healing methods in which connection the harmful effects of quackery will be duly emphasized. Besides the special value of this exhibition to physicians, it will be of considerable value to the community in general because of the prevalence of quackery in Hungary in recent years. This was a consequence of the financial crisis, which placed medical attention within the reach of the well-

to-do class only, while the poor had to trust to quacks for relief. As a result they have greatly increased in number during the last few years.

The scheme of the Exhibition will be as follows:

I. 1. Ancient quacks: fortune tellers, sorcerers, witches, magicians and wizards. 2. Modern quacks: fortune tellers, magnetic healers, miracle workers, midwives, charlatans, herbalists and gipsies. 3. Quacks who have had scientific training as pharmacists, homeopaths, botanists, biochemists, opticians and the like, and those who claim to have had it as dental technicians, bonesetters, gymnastic teachers, magnetisers, masseurs, astrologists, occultists, antivaccinationists and nature healers.

II. The life and training of quacks.

III. Objects popularly believed to be curative for certain diseases, as plants, minerals, amulets, horse shoes, talismans and four-leaf clovers.

IV. Superstitions and popular customs of medical significance; magic sayings, spells, incantations and bewitchings.

V. Popular healing methods: fomentations, massage of painful joints, treatment of wounds and sweating cures; also a display of publications and advertisements.

VI. The different forms of quack activities: public speakings and recitations, with a display of their calendars.

VII. The therapeutic methods of quacks: hypnosis; nature healing; tea and herb treatments; emaciation cures; drugs and devices for the cure of deafness.

VIII. Quackery and the community: medical ethics; quacks possessing regular medical diplomas; the training of physicians as one of the most important factors in the fight against quackery; and quackery from the standpoints of public welfare, and the economic position of the medical profession.

IX. The benefactors of humanity. An exhibit devoted to nurses, caretakers, the medical auxiliary staff, the Red Cross, and the celebrated physicians and naturalists of Europe.

X. Legal measures against quackery in Hungary and in foreign countries: the prohibition of the publication of quack advertisements and the increased control of the sale of drugs.

XI. Society movements against quackery: education of the public and organizations for the suppression of quackery.

XII. Foreign associations against quackery: the German society for combating quackery, and others.

The Common Fault of Protective Spectacles

Dr. Joseph Imre, professor of ophthalmology at the University of Budapest, has investigated the so-called heat-protection spectacles, which are so much used by those taking sun-cures and by motor car drivers. He found that neither the new nor the old glasses were satisfactorily protective as they become warm through, absorbing the heat rays and thereby failing to afford complete protection against them. In collaboration with Dr. Kockas, he tested the various kinds of glasses sold by opticians and found that metal-coated reflector glasses are the most suitable for everyday use and for special industrial work.

A Call to Subscribers

The financial position of the Hungarian medical profession is reflected by the following appeal to subscribers, made by the *Orvosi Hetilap*, the oldest and foremost Hungarian medical weekly: "We wish to remind our subscribers that we appended blanks to our twenty-seventh and twenty-eighth numbers to be filled in by those whose subscriptions have expired or who owe money on their subscription account. The number of the latter does not decrease, from which we conclude that the earnings of physicians have not improved. We can sympathize with them but we must request them to pay something on account to save us the necessity of taking other means of collecting. We shall endeavor to give our subscribers an interesting and instructive paper during the summer vacation, because our colleagues pay much more attention to reading the professional papers when there is a pause in their work.

Curability of Atrophy of the Optic Nerve

At the recent meeting of the Royal Medical Society, Dr. Albrich discussed the curability of optic atrophy and concluded that the modern treatment methods of endolumbar air inflation, malarial infection, and the administration of phlogotic preparations have not fulfilled expectations. Spontaneous slow progress and remission cannot be excluded. He thinks the results of the treatment depends mainly on the cooperation of the patient. On the same occasion, Dr. Fazekas gave an account of his experiments on the combined intravenous administration of neoarsphenamine and merbaphen with endolumbar air inflation. By this method he was able to achieve lasting, controllable improvement in 50 per cent of his cases. Prof. Emile Grosz of Budapest, president of the Postgraduate Medical Courses Committee, then spoke as follows: The curability of tabetic optic atrophy has aroused much hope in the past and at the same time has been the source of much disillusion. When the inflammatory nature of optic atrophy was emphasized and the most vigorous antisyphilitic cures were suggested, many believed in their efficacy. But neither these nor bismuth brought sucess. Fazekas' method has not yet been used in enough cases for it to be regarded as thoroughly tested. The contrary standpoints of Fazekas and Albrich are well explained on the basis of different pathologic grounds. As early as 1897 he was one of those who asserted the toxic origin of optic atrophy, and although the histologic observations of Richter and Staargardt are against it, it is supported by the work of Behr, who says that the intoxication affects the ganglion cells first. There is no doubt that the process is of an ascending nature, and for this reason he believes that the perichiasmatic inflammation does not explain optic atrophy. He accepts Albrich's standpoint but thinks that further experiments are necessary. Professor Grosz says that tabetic optic atrophy does not contraindicate antisyphilitic treatment but that it must be administered carefully so as not to impair the sight and visual fields.

BERLIN

(From Our Regular Correspondent)

July 13, 1928.

The Treatment of Syphilis

Some time ago the executive board of the Deutsche Dermatologische Gesellschaft investigated the much discussed question of the effects of syphilis therapy on so-called metasyphilis and aortitis. Considerable misinformation was found to prevail concerning these effects, so a committee was instructed to draw up a statement of its attitude in the matter, which was submitted to the members of the executive board and to those members of the Deutsche Dermatologische Gesellschaft who are head professors, directors of large hospital departments, or assistant professors, including many foreign professors residing in Europe. It was endorsed by 120 of them out of a total of 130 to whom it was submitted. It was then published in the *Deutsche medizinische Wochenschrift*, as well as elsewhere, and reads essentially as follows:

In contradistinction to the large majority of syphilologists, a number of authors are advising that the use of drugs in the treatment of syphilis be curtailed and that, in the secondary period especially, arsphenamine be entirely avoided. In support of their position, they assert that general paralysis has increased since the introduction of arsphenamine, and that in countries with a backward civilization paresis either did not appear until after the introduction of arsphenamine or increased with its introduction. Aortitis is also said to have increased owing to the use of arsphenamine. In opposition to such statements, we believe it is our duty to declare:

1. There is no statistical proof of any definite increase of paresis among civilized or partly civilized peoples due to the use of arsphenamine. It ocurred before the introduction of this

drug, and while there are a few reports that point to an increase in certain sections since its introduction, there are many more that furnish no evidence of an increase, and numerous others that clearly show a decrease. Also the statement that inadequate treatment with arsphenamine increases the frequency of late neurosyphilis has never been proved. If that were true, an increase of paresis and tabes would have become very evident by this time, since, when arsphenamine was first introduced, most cases received inadequate treatment as judged by our present conceptions. The so-called neurorelapse, which is supposed to be due to insufficient treatment with arsphenamine, has apparently become much more rare in all regions, and has disappeared entirely in others.

2. Also the statement that aortitis has become more frequent as a result of arsphenamine treatment is still unproved.

3. The excellent results obtained from adequate treatment with arsphenamine (especially if in combination with bismuth or mercury) in the primary stage are almost universally recognized. Also in the secondary period, cases in which thorough and repeated treatment with arsphenamine has been carried out, have given very good results, which, in many instances have persisted for many years. The assumption that such cases more frequently show late manifestations of the disease in the nervous or vascular system than do cases in which no, or only mild doses of, arsphenamine are employed is contrary to our experience. Also recent clinical reports furnish such favorable figures that, in view of the long observation to which many treated patients have been subjected, authorities recognize a complete recovery in many such cases.

The authors who advocate the restriction or the abandonment of arsphenamine treatment in the secondary stage support their view, in part, by the assumption that the natural immunization phenomena are unfavorably influenced by the suppression of the skin symptoms. For syphilis this conception is purely theoretical. It has not been proved that the application of arsphenamine in the secondary stage reduces the immunizing power of the organism. The extremely large number of patients who have received energetic arsphenamine treatment in the secondary period, and in whom clinical, serologic and spinal fluid tests have proved negative, show that its effects are often such as to replace the immunizing forces of the organism, or that they, through the destruction of the spirochetes, accomplish more than do the immunizing forces. The aforementioned assertions, which are often presented with considerable vehemence but are never supported by proofs, not only serve to further the cause of the "nature doctors" but often have a disquieting effect on physicians and patients that is wholly unjustified by the facts. In 1923, a majority of the members of the Deutsche Dermatologische Gesellschaft, and, in 1926, some fifty recognized specialists from all parts of Europe, almost unanimously declared that arsphenamine, if used with the necessary caution and with careful supervision of patients, is a relatively harmless remedy when its potency and the importance of its therapeutic action are considered. In our opinion, therefore, it is the duty and the right of physicians to treat syphilis early and thoroughly with our most effective remedies, arsphenamine, bismuth or mercury. They will thus be doing the best thing possible not only for the welfare of the individual patients who consult them but also for the combating of syphilis as an epidemic.

The Increase of Pulmonary Embolism

Professor Oberndorfer recently discussed the increase of pulmonary embolism (fatal and nonfatal) before the Münchener Aerztlicher Verein. He estimated that it had occurred in 2.5 per cent of all cases in recent years, and said that the 40-50, the 50-60, the 60-70 and (possibly) also the 70-80 age groups were particularly affected. He found that a large number of women presented the disorder but considered this to be accounted for by the nature of the material examined. He said that diseases of the heart and blood vessels were the most frequent cause, that it was seldom due to cancer and tuberculosis, and that surgical interventions need scarcely be considered. Whether there was an increased number of cases of embolism following injections of afenil (calcium chloride urea) in an attempt to prevent postoperative pneumonia could not be determined by his cases. Lienhard incriminates intravenous injections in general as the cause of injury. It will be recalled that many injections are given in diseases of the heart and blood vessels. It is assumed that the increase in pulmonary embolism is a result of the influenza epidemic of 1918 but it must be remembered that young and strong persons were its principal victims, while the persons that now develop embolism are usually past the age of 40. As to the etiology, there is another possible cause; namely, the increased incidence of heart disease in recent years. Today heart patients experience more pulmonary embolisms than formerly.

During the discussion that followed the address, Professor Krecke remarked that, according to some authors, the number of patients that develop pulmonary embolism after surgical interventions has increased threefold. The cause is hard to discover. In his institution, in which few intravenous injections are given, he has observed few cases of embolism. After an attack of influenza, a patient should not be subjected at once to a serious operation. Before operations the blood circulation must be stimulated and strengthened; for instance, by means of 0.3 Gm. of digipuratum injected subcutaneously from two to three days previously. Before and after the operation, respiratory and muscular activity should be stimulated. Also as most emboli originate in the femoral vein, the patient should perform leg exercises in bed in an attempt to prevent this, if possible. Deeper respiration, which stimulates the venous circulation, may be induced by the inspiration of carbon dioxide, about twenty inspirations an hour, beginning before the operation and continuing for from three to six days afterward. Frequent roentgenization or transillumination is said to predispose to the formation of emboli. Emboli are especially common after operations on the prostate, and likewise after interventions in cancer of the stomach and intestine. Sepsis or asepsis plays no part. Embolism almost never develops after appendectomy, but after hernia operations it occurs rather frequently. Professor Zumbusch stated that in connection with 12,000 injections annually, many of which were injections of silver preparations, he had never observed a case of pulmonary embolism.

Prophylactic Measures Against Rickets

The municipality of Berlin is planning to increase the number of infant welfare centers and to equip them with irradiation apparatus against rickets. All children who are rachitic or show evidence of becoming so will receive treatment free of charge. Children will also be given orthopedic treatment when needed. As the orthopedic department of the university clinic is overburdened at present, new orthopedic centers are to be established in the municipal hospitals.

Marriages

EDWARD THURSTON BRADING, Rochester, Minn., to Miss Grace Edith Miller at Bristol, Tenn., May 26.

ALAN G. BROOKS to Miss Catherine Alexander, both of Robinson, Ill., at Danville, July 19.

HENRY V. HANSON, Minneapolis, to Miss Ethel Odelia Johnson of St. Paul, August 15.

HARRISON B. JEWELL, Coon Rapids, Iowa, to Miss Russom Nowles of Yale, June 30.

FRANCIS M. HILLER, Carterville, Ill., to Miss Irene Ferrill of Alto Pass, July 4.

Deaths

Joel Ives Butler ✠ Tucson, Ariz.; Johns Hopkins University School of Medicine, Baltimore, 1901; member of the House of Delegates of the American Medical Association in 1917; formerly instructor in anatomy and clinical assistant in general urologic surgery at his alma mater, and instructor in surgery, Yale University School of Medicine, New Haven; served during the World War; on the staff of the Southern Methodist Hospital and Sanatorium and at one time on the staffs of the Springfield and Mercy hospitals, Springfield, Mass., and the New Haven (Conn.) Hospital; aged 50; died, June 28, at Los Angeles, of sarcoma of the humerus.

James William Mitchell, Lewiston, Pa.; Medico-Chirurgical College of Philadelphia, 1898; member of the Medical Society of the State of Pennsylvania; at one time member of the state legislature; for fifteen years member of the board of health of Lewiston; formerly on the staff of the Lewiston Hospital; aged 57; died suddenly, April 30, of heart disease.

Otto Bismarck Bock, Sheboygan, Wis.; Rush Medical College, Chicago, 1894; member of the State Medical Society of Wisconsin; also a druggist; veteran of the Spanish-American War; city health officer; was largely responsible for the introduction and passage of the Basic Science Law in Wisconsin; aged 57; died, August 14, of carcinoma of the liver.

John S. Kirkendall ✠ Ithaca, N. Y.; Homeopathic Hospital College, Cleveland, 1880; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otological Society; on the staff of the Willard (N. Y.) State Hospital; aged 74; died, August 10, of a skull fracture received in a fall.

Lewis Hackaliah Miller, Tuckahoe, N. Y.; Medical Department of Columbia College, New York, 1880; member of the Medical Society of the State of New York; formerly instructor in laryngology and rhinology, Long Island College Hospital, Brooklyn; aged 76; died, August 5, of heart disease.

Jacob Campbell ✠ Boulder, Colo.; Colorado School of Medicine, 1887; formerly assistant professor of surgery at his alma mater; past president of the Boulder County Medical Society; formerly city health officer and county coroner; aged 65; died, June 9, of carcinoma of the urinary bladder.

Cressy L. Wilbur, Albany, N. Y.; Bellevue Hospital Medical College, New York, 1890; formerly chief statistician of the United States Bureau of Census and director of vital statistics, state board of health; aged 63; died, August 9, in a sanatorium at Utica, of pneumonia.

Charles Elmer Chandler, Montpelier, Vt.; Medical Department of Columbia College, New York, 1883; member of the Vermont State Medical Society; formerly on the staff of the Heaton Hospital; aged 66; died, April 30, of arteriosclerosis and cerebral hemorrhage.

Calvin James Crow, Muldoon, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1881; University of Nashville (Tenn.) Medical Department, 1882; aged 76; died, January 18, at Lubbock, of hypertrophy of the prostate and senile dementia.

Andrew W. Schiller, Salem, Ohio; Western Reserve University School of Medicine, Cleveland, 1882; member of the Ohio State Medical Association; aged 68; on the staff of the Salem City Hospital, where he died, August 8, of cerebral hemorrhage.

Albert E. Lauson, Anthony, N. M.; College of Physicians and Surgeons, Chicago, 1894; formerly assistant in clinical surgery, Wisconsin College of Physicians and Surgeons, Milwaukee; aged 62; died recently, of pulmonary tuberculosis.

Margaret Koch, Los Angeles; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1895; formerly member of the Minnesota State Board of Medical Examiners; aged 63; died in July, of arteriosclerosis.

Charles B. Gauss ✠ Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1897; served during the World War; aged 54; on the staff of St. Lawrence Hospital, where he died, August 4, of carcinoma of the prostate.

Lindly Long Toland, Rittman, Ohio; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1903; member of the Ohio State Medical Association; aged 57; died, July 24, of heart disease.

Thomas Jefferson Ritter, Ann Arbor, Mich.; University of Michigan Medical School, Ann Arbor, 1879; Homeopathic Hospital College, Cleveland, 1880; aged 73; died, August 8, in the Mercywood Sanitarium, of arteriosclerosis.

Charles Henry Quinn, West Concord, N. H.; Dartmouth Medical School, Hanover, 1898; member of the New Hampshire Medical Society; served during the World War; aged 55; died, May 23, of chronic cardiorenal disease.

Sidney Andrew Rowe ✠ Glens Falls, N. Y.; Medical Department of the University of the City of New York, 1894; formerly on the staff of the Glens Falls Hospital; aged 57; died, July 10, of lymphosarcoma.

Francis X. Tremblay, Willows, Calif.; University of Montreal Faculty of Medicine, Montreal, Que., Canada, 1886; aged 73; died, July 22, at the Fairmont Hospital, Oakland, of carcinoma of the bladder.

Richard A. Cloyd ✠ Catlin, Ill.; Medical College of Indiana, Indianapolis, 1890; aged 64; died, August 5, at Lake View Hospital, Danville, of myocarditis and perforating gastric ulcer with hemorrhage.

Charles A. Mateer, Fremont, Mich.; Hahnemann Medical College and Hospital, Chicago, 1896; member of the Michigan State Medical Society; aged 60; died, July 27, of carcinoma of the colon and liver.

Thomas Fields ✠ Kansas City, Mo.; Kansas City Medical College, 1894; aged 61; on the staff of St. Mary's Hospital, where he died, August 4, of carcinoma of the sigmoid flexure of the colon.

George W. Kirk ✠ Philadelphia; Hahnemann Medical College of Philadelphia, 1871; aged 78; died, July 23, at the Hahnemann Hospital, of mesenteric thrombosis and arteriosclerosis.

David Andrew Clark, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, 1892; assistant deputy minister of health; served during the World War; aged 60; died, June 13.

Joseph Frank Griffin ✠ Los Angeles; Vanderbilt University School of Medicine, Nashville, Tenn., 1890; aged 63; died, July 24, at the Methodist Hospital, of acute intestinal obstruction.

Philip J. Conboy ✠ Rochester, N. Y.; Jefferson Medical College of Philadelphia, 1894; formerly on the staff of St. Mary's Hospital; aged 61; died, July 31, of toxic myocarditis.

Robert Pyle Mercer, Chester, Pa.; Homeopathic Medical College of Pennsylvania, 1861; for many years connected with the Crozer Home; aged 90; died, July 16, at Ridley Park.

Robert McClellan Rankin, Covington, Ky.; Medical College of Ohio, Cincinnati, 1890; past president of the Campbell-Kenton County Medical Society; aged 66; died, July 18.

Charles Lawrence Campbell ✠ Pittsburgh; Jefferson Medical College of Philadelphia, 1886; aged 66; died, July 31, of streptococcic infection of the throat and nephritis.

Leon Vincent Kear ✠ Oyster Bay, N. Y.; Fordham University School of Medicine, New York, 1919; aged 34; was accidentally drowned, August 13, while swimming.

Charles Henry Bates ✠ Ludlow, Vt.; University of Vermont College of Medicine, Burlington, 1897; aged 59; died, July 22, of peritonitis following ruptured appendix.

M. V. Edwards, Horse Cave, Ky.; University of Louisville School of Medicine, 1878; Civil War veteran; aged 88; died, July 7, of bronchopneumonia following influenza.

Lionel John Mothersill, Port Stanley, Ont., Canada; Victoria University Medical Department, Toronto, 1885; aged 70; died, April 23, at London, of pneumonia.

T. F. Bivins, Vienna, Ga.; Louisville (Ky.) Medical College, 1885; member of the Medical Association of Georgia; aged 64; died, July 3, at Rochester, Minn.

William Putnam Colvin, New York; Columbia University College of Physicians and Surgeons, New York, 1915; aged 44; died, June 22, of heart disease.

Curtis H. Castle, Santa Barbara, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 79; died, July 24, of arteriosclerosis and heart disease.

Thomas Pinkney Chapman, Washington, D. C.; Medical Department of Columbian University, Washington, 1898; aged 59; died, August 4, of heart disease.

John A. Youngkin, Yoakum, Texas; Medical Department University of Louisiana, New Orleans, 1876; aged 78; died, July 16, following a prostatectomy.

Henry Alden Bunker, Brooklyn; Medical College of Ohio, Cincinnati, 1876; aged 74; died, July 26, at New Foundland, N. J., of cerebral hemorrhage.

✠ Indicates "Fellow" of the American Medical Association.

Humphrey Perrin Palmer, Oakland, Calif.; University of Buffalo (N. Y.) School of Medicine, 1891; aged 60; died, June 23, of pulmonary embolus.

Charles Albert Walter, Lawrenceburg, Ind.; Miami Medical College, Cincinnati, 1893; aged 69; died, July 23, at Indianapolis, of chronic myocarditis.

Joseph J. Jones, Hampton, Va.; Leonard Medical School, Raleigh, N. C., 1901; aged 57; died, July 25, at the Whittaker Hospital, Newport News.

Harrison Sales Forgrave, Jr., Montreal, Que., Canada; Johns Hopkins University School of Medicine, Baltimore, 1926; aged 27; died, June 7.

H. **Young Westbrook,** Baltimore; Baltimore University School of Medicine, 1890; aged 65; died, August 4, of carcinoma of the stomach.

William J. Reavis, Evansville, Ind.; Medical College of Ohio, Cincinnati, 1886; aged 74; died, July 22, of carcinoma of the tongue.

Ezra **Barker Pike,** Brentwood, N. H.; Medical School of Maine, Portland, 1857; also a minister; aged 95; died, July 9, of senile debility.

Frank Alexander Kautz, Cincinnati; Miami Medical College, Cincinnati, 1895; aged 75; died, July 31, of carcinoma of the stomach.

Chilton S. Rice, Rice, Neb.; American Eclectic Medical College, Cincinnati, 1893; aged 73; died, June 24, at Dickens, of pneumonia.

Jefferson Erwin Fraser, Garner, Iowa; College of Physicians and Surgeons, Chicago, 1891; aged 64; died, July 12, of heart disease.

William J. Blalock, Atlanta, Ga.; Medical Department of Columbia College, New York, 1893; bank president; aged 60; died, July 1.

Jesse Maxwell Corum, Paris, Tenn.; University of Louisville (Ky.) School of Medicine, 1875; aged 79; died, July 25, of paralysis.

George T. Walker, Greenville, S. C.; Atlanta (Ga.) Medical College, 1877; aged 74; died, January 6, of hypostatic pneumonia.

Otis Judd Eddy, Washington, D. C.; Long Island College Hospital, Brooklyn, 1870; aged 82; died, July 25, at Atlantic City, N. J.

Thomas Harold Taylor, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1909; aged 45; died recently.

William C. Tyler, Rouseville, Pa.; Philadelphia University of Medicine and Surgery, 1870; aged 90; died, June 22, of senility.

Jean Saylor Brown, Williamsport, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1874; aged 84; died, June 23.

Maurice Snyder, Toronto, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1921; aged 36; died, May 27.

Ed **R. Yeiser,** Lawrenceburg, Tenn.; Hospital Medical College of Evansville, Ind., 1889; aged 77; died, July 6, of paralysis agitans.

Logan McLean Crichton, Atlanta, Ga.; Bellevue Hospital Medical College, New York, 1888; aged 62; died, July 27,

George Edward Krapf, St. Louis; American Medical College, St. Louis, 1903; aged 57; died, July 26, of heart disease.

Jacob L. Owen, Los Angeles; Kansas Medical College, Topeka, 1892; aged 70; died, July 18, of heart disease.

Louis J. Beyerlein ✠ Chicago; Harvey Medical College, Chicago, 1899; aged 70; died, August 13, of heart disease.

Charles Newton Pence, Woodriver, Ill.; Chaddock School of Medicine, Quincy, 1889; aged 61; died, July 27.

Ira **Bishop,** Bertha, Minn.; Rush Medical College, Chicago, 1876; aged 78; died in June, of aortic regurgitation.

Henry C. Gibbs, Curryville, Mo.; St. Louis Medical College, 1884; aged 65; died, July 25, of heart disease.

Lorenzo D. Tout, Cedar Vale, Kan. (licensed, Kansas, 1901); aged 71; died, Jnly 14, of heart disease.

Alois Frank Seifris, Mars, Pa.; Jefferson Medical College of Philadelphia, 1909; aged 40; died, August 4.

Gallaher Ernest Neal, Broxton, Ga.; Atlanta School of Medicine, 1908; aged 43; died suddenly, July 5.

Alexander C. McDougal, Right, Tenn. (licensed, Tennessee, 1889); aged 82; died, July 15, of senility.

Bureau of Investigation

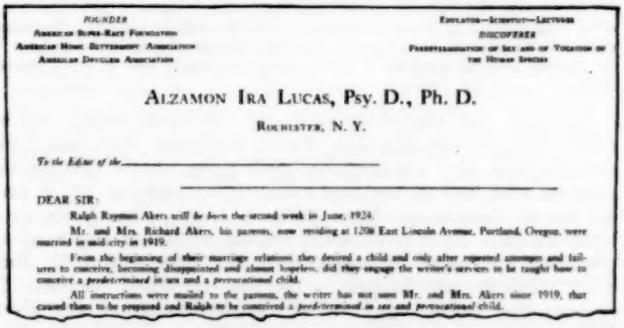
ALZAMON IRA LUCAS

A Blatant Quack Meets His Waterloo

For some years one Alzamon Ira Lucas, who puts after his name the letters "Psy.D., Ph.D.," has been preying on the gullible. He describes himself as an "Educator—Scientist—Lecturer" and as the discoverer of "Predetermination of Sex and Prevocation of the Human Species," and the founder of such organizations as "American Super-Race Foundation," "American Home Betterment Association" and "American Drugless Association." A few weeks ago this impudent faker was convicted of grand larceny and sentenced to serve from two to four years in prison.

Lucas has figured in police reports at various times during his career. According to newspaper articles that have appeared at different times detailing Lucas' activities, Alzamon Ira Lucas is a negro. Lucas is said to deny this but to admit that he has Cherokee Indian, Dutch, French, Hindu and Spanish blood in his veins. During a libel suit in which Lucas was involved in Portland, Oregon, there is reported to have been introduced (1) a birth certificate recording him as a negro, (2) evidence to show that he was ordained a minister in the Tabernacle Baptist Church (colored) in Los Angeles, and (3) that his first marriage took place in Cheyenne, being performed by a colored clergyman in a colored church before colored witnesses!

A résumé of Lucas' career, reported to have been introduced in the Portland trial, showed that, in 1889, he was a bellboy in a San Francisco hotel; from 1890 to 1893, he was giving



FOUNDER
American Super-Race Foundation
American Home Betterment Association
American Drugless Association

EDUCATOR—SCIENTIST—LECTURER
DISCOVERER
Predetermination of Sex and of Vocation of the Human Species

ALZAMON IRA LUCAS, Psy. D., Ph. D.
ROCHESTER, N. Y.

To the Editor of the _____

DEAR SIR:

Ralph Raymon Akers *will be born the second week in June, 1924.*

Mr. and Mrs. Richard Akers, his parents, now residing at 1206 East Lincoln Avenue, Portland, Oregon, were married in said city in 1919.

From the beginning of their marriage relations they desired a child and only after repeated attempts and failures to conceive, becoming disappointed and almost hopeless, did they engage the writer's services to be taught how to conceive a *predetermined* in sex and a *prevocational* child.

All instructions were mailed to the parents, the writer has not seen Mr. and Mrs. Akers since 1919, that caused them to be prepared and Ralph to be conceived a *predetermined in sex and prevocational* child.

Photographic reproduction of the opening paragraph of a letter sent to the editors of newspapers and magazines by Alzamon Ira Lucas, in which he asserts that Mrs. Richard Akers would give birth to a boy baby a month hence. The baby came, but it was a girl.

"mind readings" and sleight of hand performances in California mining towns; from 1893 to 1895, he was a janitor; from 1897 to 1899, he was an itinerant entertainer in small towns in California, Nevada, Oregon and Washington, and was even at that time running "sex-problem lectures" in addition to his other stunts. In 1900, he is said to have been a barber in Washington and a year later a barnstormer in Hoyle's Magic Show, later becoming an itinerant entertainer and "psychologist." In 1902, he established himself as a healer in Bozeman, Montana, and Denver, Colorado, where he is said to have founded the "Limitless Life Society," which held that a man could live a thousand years. He is said to have practiced "mental healing" in Nampa, Idaho, and Pendleton, Oregon, in the latter town being arrested on a criminal libel charge. In Seattle, he was fined for violation of the medical practice act. During the course of Lucas' trial at Portland, it is reported that the former district attorney of Denver testified that he gave Lucas the alternative of getting out of town or being arrested after he had distributed sex literature to high school girls. The same sources of information that are authorities for the statements just given also declare that Lucas charges that all of his unfortunate experiences in the courts have been due to persecution on the part of the American Medical Association!

After his vicissitudes in other American cities, Alzamon Ira Lucas finally settled upon Rochester, New York, as headquarters for the creation of the "American Super-Race Foun-

dation." Therein Lucas showed poor judgment. As an expert in predetermination Lucas made the fundamental error of locating in a city that had a very active health officer, Dr. George W. Goler, and a Better Business Bureau with an up-and-coming manager, Mr. F. M. Willson. It seems to have been largely due to the activities of Dr. Goler and Mr. Willson, with, of course, the help of an efficient police department, that Lucas is going to have the opportunity of two to four years' study, unhampered with the economic necessity of making a living, while in retirement in Auburn prison.

In 1923, Lucas was carrying half-page advertisements in Rochester newspapers, inviting the public to attend a lecture and demonstration that he would give in the Corinthian Theatre of that city. As part of the propaganda of the American Super-Race Foundation, Lucas got out a twelve-page booklet telling what the "super-race" concern is, what it proposes to do, and what it expects to accomplish. It seems that the American Super-Race Foundation founded by this person of negro, Indian, Dutch, French, Hindu or Spanish antecedents—as the case may be—was to be open only to "citizens of Caucasian blood" for the purpose of "producing a super-Caucasian race in America." One of the methods of achieving this was to instruct the members of the "Super-Race Foundation" in "how to prevent the birth of subnormal and degenerate children" and, at the same time, "how to predetermine the sex and vocation of children." The predetermination of sex seems to have been a strong point with Lucas. Doubtless he knew that anything with the word "sex" in it is good for a certain amount of public appeal. Early in 1924, Lucas was sending out a printed letter, addressed to the editors of various publications. The letter opened thus:

"*Dear Sir:*—Ralph Raymon Akers will be born the second week in June, 1924. Mr. and Mrs. Akers, his parents, now residing at 1208 East Lincoln Avenue, Portland, Oregon, were married in said city in 1919. From the beginning of their marriage relations they desired a child and only after repeated attempts and failures to conceive, becoming disappointed and almost hopeless, did they engage the writer's services to be taught how to conceive a *predetermined* in sex and a *prevocational* child."

In order that the editor receiving this letter might not be under any misapprehension, Lucas explained that, after his services had been engaged, he mailed the instructions to the parents, who he had not seen since 1919. Incidentally, it may be worth mentioning, Mrs. Richard Akers gave birth to a child on June 17, but, instead of being a "Ralph Raymon" as predicted by Lucas, it happened to be "Merna Ruth." But, then, accidents will happen in the best regulated families. It appears that Lucas' secret of sex predetermination was given in private appointments, at a cost of $20 an appointment. The Rochester *Herald* reported some time ago that Lucas had given at least 100 of these $20 appointments locally. As the paper stated: "His lectures were well attended, principally by women."

The present troubles of Alzamon Ira Lucas began about two years ago, when he was indicted on the complaint of a woman who charged that he defrauded her of $250, by falsely representing he could cure her of lung trouble and "awaken life within her." Lucas fought the indictment until June, 1928, when he was placed on trial at Buffalo, under a change of venue. The jury returned a verdict of "guilty" after thirty minutes' deliberation and sentenced him to serve from two to four years in prison. After his conviction, Lucas attempted to get a certificate of reasonable doubt from the Supreme Court, so that he might apply for release on bail pending a determination of appeal. Justice A. W. Lytle of the Supreme Court, however, refused on July 6, 1928, to grant such a certificate.

It seems likely that, after Lucas gets out of the penitentiary, he will give Rochester, New York, a wide berth.

The Beriberi Heart.—The first unsolved problem of the beriberi heart is the extreme widening and failure of the right heart in contrast with the relative smallness of the left ventricle and the absence of pulmonary stasis. This seems the more enigmatic as there is proof that both sides of the heart suffer at the beginning of the disease. The soft and frequent pulse, however, the curious wriggling motion of the enlarging heart, and the progressive overfilling of the proximal parts of the venous system . . . are undeniable signs of the heart's incapacity.—Wenckebach, K. F.: *Lancet*, Aug. 11, 1928.

Correspondence

THE CORRECTION OF SECONDARY PALATE DEFECTS

To the Editor:—In THE JOURNAL, May 19, page 1614, I perused with interest the article on "The Correction of Secondary Palate Defects," by Frederick B. Moorehead, M.D., Chicago. The operation described and illustrated by Dr. Moorehead is in principle the same as that which I published in the *Annals of Surgery* **82**:208 (Aug.) 1925, read before the Academy of Surgery, Philadelphia, April 6, 1925.

I then called attention to the fact that there are certain cases of cleft palate in which the classic Langenbeck operation does not provide a velum long enough to reach the posterior pharyngeal wall and thereby to produce the necessary closure between the oropharynx and the nasopharynx so desired for normal speech. The operation as described by me in 1925 was termed the push-back operation, and, in performing it, backward displacement of the velum is rendered possible in order to enable the palatal muscles with the assistance of the superior constrictor muscle of the pharynx to produce the sphincter-like closure between the oropharynx and the nasopharynx. I also added that this method was used by me in all cases in which the Langenbeck operation had been performed and in which the resulting velum as was too short to reach the posterior wall of the pharynx.

It is interesting to note that Dr. Moorehead, before publishing his article, did not take the trouble to consult the works of Ernst and of Halle, although he refers to them.

As a matter of fact, the push-back operation was developed by me and named as such before Halle presented his observations to the profession. Halle read his paper before the Gesellschaft deutscher Hals-, Nase- und Ohrenärzte, which met in Munich, May 28, 29 and 30, 1925, published in the *Zeitschrift für Hals-, Nasen- und Ohrenheilkunde* **12**:377, 1925.

On the other hand, in the *Zentralblat für Chirurgie* (**52**:464 [Feb. 28] 1925) Ernst published an article in which he criticized Rosenthal's method of velopharyngoplasty and suggested circular narrowing of the pharynx to enable its posterior wall to meet the velum to correct the deficiency so common among cleft palate patients. He also insisted that, if this method did not suffice the desired purpose, backward displacement of the palate may be instituted. Ernst's article does not contain illustrations and is somewhat obscure in phraseology. I could not develop a mental picture of his operation until Halle published the article refered to previously.

The late Herbert L. Smith of Nashua, N. H., suggested an operation as early as 1895 by which the velum could be lengthened to reach the posterior wall of the pharynx (*Boston M. & S. J.* **132**:478, 1895). This method is illustrated in the *Transactions of the New Hampshire Medical Society*, 1905, p. 277.

I am writing to you to establish priority to the American school for having innovated operations for lengthening the palate and to me for having methodically and independently developed the push-back operation for the palate as being the most adequate means of making the velum approximate the posterior pharyngeal wall for the correction of nasal speech in persons with cleft palate with short vela.

In reviewing the literature, it is interesting to note that the idea that for the production of normal speech the velum should be long enough to reach the posterior wall of the pharynx has attracted the attention of the pioneers in palate surgery, and that various methods have been suggested to remedy this deficiency.

I feel that Dr. Moorehead's operation is quite right in principle and that he and all the rest of us realize that there are cases of cleft palate in which the classic Langenbeck operation, sucessfully performed, does not make these palates function to

the desired advantage. However, I do object to the fact that he has taken credit for having devised an operation that I have previously developed and published.

GEORGE MORRIS DORRANCE, M.D., Philadelphia.

[NOTE.—The letter by Dr. Dorrance was referred to Dr. Moorehead, who writes:]

To the Editor:—The principle on which an appendix or a gallbladder may be removed is one thing, while the method of doing it is quite another. Frankly, I do not know who first suggested a transposition of the palate, and if Dr. Dorrance is entitled to that credit, I am perfectly willing he should have it.

In my paper I discussed a method which I have been developing the past few years. As a matter of fact, there is no occasion for transposing the palate, if the primary operation is correctly made. The other item in my paper, and one of first importance, was the method of closing a cleft palate, operating almost entirely from the outside rather than the inside. This method does not belong to the so-called group of lateral incisions. I make a small opening just outside and behind the tuberosity, through which a blunt dissection is carried beneath all of the structures. This permits the movement inward of the entire body of the soft palate, insuring a closure, and also a palate as long as may be necessary in the individual case, at the primary closure. It is perfectly true that there are a great many short palates, the result of faulty original treatment, which can be corrected best by a transposition of the palate, and my thesis was the technic employed in doing this. My thought in publishing the paper was to suggest two very useful and simple methods of handling both the wide cleft and the short palate.

F. B. MOOREHEAD, M.D., Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USE OF BAKELITE IN INDUSTRY

To the Editor:—There has been considerable increase in the use of bakelite in industry. I have had called to my attention several cases of dermatitis venenata apparently caused by this product. The experience in one particular factory proved that every man who handled this substance developed this rash, not only over the hands and forearms but also over the face and head. I am wondering whether or not bakelite is producing simply another type of industrial dermatitis due to a sensitization. I cannot understand why every man who handled this product should have suffered from this dermatitis. Have you any information on this product and can you give me any advice on prevention?

M. J. SHAPIRO, M.D., Minneapolis.

ANSWER.—Bakelite is a synthetic resin or condensation product formed by the combination of phenol and formaldehyde. Its manufacture is divided into two distinct phases. The first of these is the manufacture of the bakelite resin. The second is the fabrication of various articles from the previously made resin.

In resin manufacture, the use of phenol and liquid formaldehyde, or its polymers, affords potential exposure to each of these harmful agents. "Phenol gangrene" is well known. The lesions produced by formaldehyde are of the diffuse papulovesicular type common to many chemical dermatoses. Since the processes involved are carried out in enclosed apparatus, actual exposure is largely dependent on fortuitious events or carelessness. For the manufacture of special products, additional raw materials are at times necessary, including catalysts, fillers and modifying agents. Many of the irregularly used raw materials are known producers of skin diseases among exposed workmen.

In the second phase of bakelite manufacture, which is ordinarily carried out on entirely different premises, the previously made resin may be manipulated as a dry powder or as a liquid resembling varnish. When used as coating material for fabric or paper in the manufacture of laminated products, the bakelite resin is dissolved in industrial alcohol or, less frequently, in benzene. A few deaths from benzene poisoning have followed the use of this solvent in this industry. In addition to its systemic action, benzene is a well known skin irritant producing the dermatitis of the arms and hands common to many defatting agents, such as gasoline, naphtha and kerosene. After coatings of this varnish are applied to fabrics and drying is secured, these fabrics are cut into squares approximately 4 feet to a side, and stacks of these treated sheets are subjected to hydraulic pressure and high temperature. The result is a very hard, homogeneous panel of laminated bakelite. Later these panels may be sawn, machined, printed on, and revarnished with liquid bakelite. At any stage skin diseases may arise either from benzene or from bakelite dusts.

For molding purposes, bakelite powders are utilized. The phenol-formaldehyde resin powder is likely to be diluted with some filler. The filler of choice is the highly irritating hexamethylenetetramine (the pure substance is official as methenamine, U. S. P.), which is used to an extent of 10 per cent. Heat is required in the fashioning of molded articles from bakelite. Heat favors perspiration, and perspiration intensifies the action of hexamethylenetetramine. It is in this department that skin diseases may be common and widespread unless the greatest care is exercised in keeping the bakelite powder and the hexamethylenetetramine well confined. The description of the outbreak mentioned in the query suggests the probability of careless work in a molding department.

When bakelite is employed in the manufacture of insulating mediums, especial solvents with high boiling points are required. Anthracene, naphthalene and kindred agents may be utilized. If so, this may introduce additional skin hazards. Anthracene is a carcinogenic agent. Long continued exposure may result in epithelioma.

Bakelite may be used as or in paints, enamels and lacquers. Highly diversified uses call for the inclusion at times of acids, alkalis, toluene, benzene, xylene, terpenes, acetone, dyes and pigments—all known as possible causes of skin lesions.

A discussion of prevention is limited to the commonest irritant, hexamethylenetramine. Skin lesions are far more frequent in summer months on account of freer prespiration. Prevention should be built around the avoidance of bakelite dusts. Saws, lathes and all other machinery that creates dusts should be fitted with suction apparatus or otherwise should dispose of the dust at its source. Molding rooms should be so equipped with its necessary heating devices as to minimize the heat hazard for workers. Workers continually in contact with hexamethylenetetramine or bakelite dusts should frequently lave their hands and other exposed parts in sodium bicarbonate solutions or weak alkalis. As noted in the query, some workers become so sensitive to mere traces of the irritant as to require a change of occupation. This sensitivity is probably not analogous to protein sensitization but is no less real. Unless exposure is minimized, increasing sensitivity will cause an expensive and unwanted high labor turnover. This, however, is not an inherent quality of the bakelite industry.

The hazards of the bakelite industry are discussed in greater length in a recent publication of the Retail Credit Company, Atlanta, Ga., "Industry Reports" III, number 6, p. 1, June, 1928.

ASTRINGENTS FOR USE IN NOSE

To the Editor:—1. Can you give me a formula for a real astringent to help remove mucus from the nares? Sometimes it is exasperating the way it will not come out. 2. When in St. Louis, I found a preparation "Astrinogen" which did the work right well, but I have lost track of it, and moreover it was very expensive.

W. L. JOHNSON, M.D., Los Angeles.

ANSWER.—1. Astringents are remedies that cause a contraction of the blood vessels supplying the mucous membrane of the nose, thus giving temporary relief, in permitting a freer passage of air so that the mucus can be more easily expelled. Those most often used are various preparations of epinephrine. When mucus is thick and tenacious it may often be dislodged by careful spraying of the nose with physiologic solution of sodium chloride to which 2 per cent sodium bicarbonate has been added. Liquor aromaticus alkalinus of the National Formulary, diluted with warm water, is also useful for the same purpose. When the secretion is mucopurulent, it means some infection of a rather low grade character in the nasal accessory sinuses, and then drainage of these cavities is necessary if permanent relief is to be accomplished. The use of an oily substance like liquid petrolatum, U. S. P., is efficacious in preventing the accumulation of mucus. Several drops may be instilled into the nose four or five times a day with gratifying results.

2. No examination of Astrinogen has been made by us. The advertising statement regarding composition says: "Astrinogen is obtained by a special chemical process from a compound containing Iodotannate, Hydrastis Canadensis and Thuja Occidentalis."

MUD BATHS IN COLORADO

To the Editor:—Could you give any information about watering places in America? I would be especially interested to know if there are any mud baths with radioactive or sulphur containing mud in Colorado.

FERDINAND SEIDLER, M.D., Chicago.

ANSWER.—Colorado has a great many mineral springs, some of which are among the most highly radioactive in the world, as the Boulder Radium Springs, Manitou Mineral Springs, Mount Princeton Springs, Poncho Hot Springs, Radio-Active Hot Mineral Springs of Ouray County, and Waunita Hot Radium Springs. Sulphur springs are to be found, among others, at Hot Sulphur Springs and Steamboat Springs. In many of these resorts, no doubt, so-called mud baths are given. They are especially mentioned in connection with the Waunita Hot Radium Springs.

LOSS OF HEARING AFTER FALL

To the Editor:—A man, aged about 20, fell, four years ago, from a height of about 2 meters. He was unconscious for about forty days and suffered hemorrhage from both ears. He completely recovered, except that he has remained entirely deaf in both ears. He is a very intelligent carpenter and works, eats, sleeps and enjoys life just as other healthy young men do. Ear examination is normal in all respects. Politzer's air insufflation indicates that both eustachian tubes are open. A loudly ringing bell placed close to either ear does not elicit any sign of hearing. When the ringing bell is touched to the temporal bones, the patient feels something like a hearing sensation by bone conduction. What is the latest treatment or advice in this case?

ABU-HAYATIAN, M.D., Alep, Syria.

ANSWER.—From the history it seems most likely that the injury sustained caused a severe traumatism in the inner ear, probably a hemorrhage which destroyed or badly injured the end-organ of the auditory nerve (organ of Corti). The patient no doubt has completely lost his hearing, and this condition after such a traumatism will probably be permanent. No type of treatment is likely to have any effect whatever on this state, and there is therefore no use to inflate the tubes or to use electrical or mechanical devices in the attempt to restore hearing.

BRONCHIECTASIS AND ASTHMA

To the Editor:—A woman, aged 26, has bronchiectasis and asthma. What can I do to give her relief, and what is the prognosis? She has become despondent because of being able to receive little or no help. I have advised postural drainage and a change of climate. What climate would be of any help? Kindly omit name.

M.D., Michigan.

ANSWER.—Asthma is only a symptom which may be due to a great variety of troubles, such as protein sensitization, sinus infections, especially ethmoiditis, cardiac lesions or actual involvement of the bronchial tubes themselves. Therefore general examination is necessary in order to determine the causative factors in the case. One of the causes of bronchiectasis is chronic sinus infection, which often gives a dropping of pus into the nasopharynx and bronchial system. In such cases opening the nasal accessory sinuses to provide proper drainage is often of great benefit. In some cases an autogenous vaccine of the secretion gives excellent results if carefully administered. In many cases of asthma and bronchiectasis, especially those due to a chronic sinus infection, the removal to a warm, dry, equable climate like that of southern Arizona is of great assistance and often affords the patient much relief.

WATER-PROOFED HOSIERY AND DERMATITIS

To the Editor:—I have discovered a case of dermatitis venenata of the soles of the feet of a young woman, which appeared immediately following the wearing of water-proof hose. Can you tell me the probable nature of the chemical substance which water-proofs the hose? Also, kindly inform me whether such cases are a common experience or not.

ROBERT HOFFMAN, M.D., South Bend, Ind.

ANSWER.—Hosiery of this type should be regarded as water-repellent rather than as water-proof. The prime purpose of preparing hosiery of this type appears to be to provide hosiery that will not show water marks from rain or from sidewalk splashings. On this account it is not necessary to treat this hosiery with any of the harsher materials required in true water-proofing of fabrics. One purveyor of this particular hosiery states to customers that the repellent property is due to the reapplication of natural silk oils, which oils are normally removed prior to silk weaving.

Since the soles of the feet ordinarily afford greater resistance to irritants, it seems reasonable to believe that in this case the dermatitis is not due to the hosiery, otherwise other portions of the feet and lower legs would likely have been involved.

Some other methods of true water-proofing of fabrics are more likely to produce harm. These other methods include in their use such substances as formic acid, copper sulphate, aluminum stearate, rubber solutions, sodium silicate, japan wax, calcium soaps and metallic oxides. There is every reason to believe that irritation of the skin may arise from certain water-proofing materials, but in the present instance the hosiery should probably be exculpated and some infection as with a fungus sought.

CHANGES IN BLOOD AFTER TRANSFUSION

To the Editor:—After the blood has been properly typed and has been transfused, does the transfusion ever so alter the recipient's blood as to render the former donor unsuitable for a second transfusion? If so, what is the cause?

R. R. GRANT, M.D., Plaquemine, La.

ANSWER.—Occasionally it happens that repeated transfusion from the same donor to the same recipient gives rise to unpleasant reactions on the part of the recipient. The only explanation for such reactions is that the blood of the donor contains substances that set up reactive processes in the recipient, but the exact nature of such substances has not been determined. In view of what has been learned concerning the absorption of materials into the blood from the digestive tract, it does not seem at all strange if the blood of one person contains substances that are foreign to the cells of another person.

BITE OF THE CENTIPEDE

To the Editor:—Could you tell me how serious the bite or sting of the common centipede we see so often in the fields would be? I am unable to satisfy myself on this point in the literature that I have.

WALTER C. MILLER, M.D., Arapahoe, Neb.

ANSWER.—While there is little definite information available on the subject, it is probable that most of the smaller centipedes have a bite similar to that of the common house centipede, *Scutigera forceps* (Raf.), which causes a slight burning sensation when it bites. The puncture points in the skin are surrounded for a short time by a reddened area, but this soon vanishes and all pain stops. In a few instances a small hard lump may be left which will persist for days. This is probably due to infection. The bite of this centipede, as well as that of most of our other species, is not to be feared. Injury from it is usually negligible, except in the case of infants.

ARSAMINE

To the Editor:—Several men in this community have been using "Arsamine" and advising patients against having regular treatment for syphilis. To my mind this is getting to a point where it is a public nuisance and injurious to the health of the community. Is this a misbranded nostrum? What steps can be taken to stop the advertising and sale of it?

M.D., Pennsylvania.

ANSWER.—According to the advertising of S. Lewis Summers, for "Arsamine," this preparation is "diarylarsonate" but no definite statement of composition is made; nor is any definite statement of composition contained in the advertising material that is in our files.

In general, the authorities charged with the enforcement of the federal Food and Drugs Act have taken no steps to stop the sale of drugs unless false claims in regard to composition or to therapeutic properties are made on or in the trade package. It is believed, however, that a constantly increasing number of physicians are refraining from the use of proprietary medicinal articles which have not been reported on favorably by the Council on Pharmacy and Chemistry. This is in accordance with the report of the Board of Trustees to the House of Delegates in 1927 urging support of the work of the Council by confining the use of proprietary drugs to those found acceptable for inclusion in New and Nonofficial Remedies (THE JOURNAL, April 9, 1927, p. 1157).

The claims that have been made by Dr. S. Lewis Summers for Befsal and which were the subject of a report "Befsal Another Alleged Synthetic" (THE JOURNAL, Feb. 21, 1925, p. 611) constitute ample justification for questioning the claims made for Arsamine.

DESENSITIZATION TO POISON IVY

To the Editor:—Is it possible for a patient to become desensitized to poison ivy? Is there any possibility of acquired immunity after several attacks? What is the best form of treatment?

ABRAHAM CHEIFITZ, M.D., Brooklyn.

ANSWER.—It is doubtful whether a patient may become desensitized to poison ivy through treatment. The best form of treatment is the application of a solution, preferably tincture of ferric chloride, as soon after exposure to poison ivy as possible, to all spots that itch. The complete answer to this question was published in THE JOURNAL, July 28, p. 267

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 4. Sec., Dr. Harry C. DeVighne, Juneau.

AMERICAN BOARD FOR OPHTHALMOLOGY: St. Louis, Oct. 15. Sec., Dr. William H. Wilder, 122 So. Michigan Ave., Chicago.

AMERICAN BOARD FOR OTOLARYNGOLOGY: New York, Oct. 11 and St. Louis, Oct. 15. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha, Neb.

CALIFORNIA: Sacramento, Oct. 15-18. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento, Calif.

COLORADO: Denver, Oct. 2, 1928. Sec., Dr. Philip Work, 324 Metropolitan Bldg., Denver, Colo.

CONNECTICUT—Healing Arts (Basic Science): New Haven, Oct. 13. Address—State Board of Healing Arts, Box 1895, Yale Station, New Haven, Conn.

GEORGIA: Atlanta, Oct. 9-10. Sec., Dr. B. T. Wise, Americus, Ga.

IDAHO: Boise, Oct. 2, 1928. Commissioner of Law Enforcement, Hon. F. E. Lukens, Boise, Idaho.

ILLINOIS: Chicago, Oct. 2-4, 1928. Supt. of Registration, Mr. V. C. Michels, Dept. of Regis. and Edu., Springfield, Ill.

KANSAS: Topeka, Oct. 9. Sec., Dr. Albert S. Ross, Sabetha, Kan.

MICHIGAN: Lansing, Oct. 9-11. Sec., Dr. Guy L. Connor, 707-708 Stroh Bldg., Detroit, Mich.

MINNESOTA — Basic Science: Minneapolis, Oct. 2, 1928. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., U. of Minn., Minneapolis, Minn.

MINNESOTA—REGULAR: Minneapolis, Oct. 16-18. Sec., Dr. A. E. Comstock, 524 Lowry Medical Arts Bldg., St. Paul, Minn.

MONTANA: Helena, Oct. 2-4, 1928. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts 1 and 2, at all class A schools, Sept. 12-14. Exec. Sec., Mr. E. S. Elwood, N. E. Cor. 15th and Locust Sts., Philadelphia.

NEW HAMPSHIRE: Concord, Sept. 13-14. Sec., Dr. Charles Duncan, Concord, N. H.

NEW JERSEY: Trenton, Oct. 16. Sec., Dr. Charles B. Kelley, 30 West State St., Trenton, N. J.

NEW MEXICO: Santa Fe, Oct. 8-9. Sec., Dr. W. T. Joyner, Roswell, N. M.

NEW YORK: New York, Albany, Syracuse and Buffalo, Sept. 17-20. Chief of State Department of Education, Mr. H. J. Hamilton, Educational Bldg., Albany, N. Y.

OKLAHOMA: Oklahoma City, Sept. 11-12. Sec., Dr. J. M. Byrum, Shawnee, Okla.

PORTO RICO: San Juan, Sept. 4. Sec., Dr. D. A. Biascoechea, Box 904, San Juan.

RHODE ISLAND: Providence, Oct. 4-5. Sec., Dr. B. U. Richards, State House, Providence, R. I.

WISCONSIN: Basic Science Board, Madison, Sept. 15. Sec., Prof. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee.

Wisconsin April Reciprocity Report

Dr. Robert E. Flynn, secretary of the Board of Medical Examiners of Wisconsin, reports 10 physicians licensed by reciprocity, April 17, 1928. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School		(1927)	Colorado
Rush Medical College		(1925)	Kansas, (1928) Colorado
State University of Iowa College of Medicine		(1925)	Iowa
Tulane University of Louisiana School of Medicine		(1907)	Tennessee
University of Minnesota Medical School		(1926)	Minnesota
University of Tennessee College of Medicine		(1904)	Penna.
University of Texas School of Medicine		(1926)	Texas
University of Frankfort-on-the-Main, Germany		(1923)	Ohio
University of Naples, Italy		(1895)*	New York

* Verification of graduation in process.

Oklahoma June Examination

Dr. J. M. Byrum, secretary of the Oklahoma Board of Medical Examiners, reports the written examination held at Oklahoma City, June 12-13, 1928. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. There were 40 candidates examined, and all passed. Six physicians were licensed by reciprocity, one duplicate license issued and one reregistration. The following colleges were represented:

College	PASSED	Year Grad.	Number Passed
Northwestern University Medical School		(1928)*	1
State University of Iowa College of Medicine		(1926)	1
Washington University School of Medicine		(1928)	1
University of Oklahoma School of Medicine		(1928)	37

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School		(1925)	Florida
University of Michigan Medical School		(1921)	Michigan
Barnes Medical College		(1905)	Missouri
Washington University School of Medicine		(1927)	Missouri
Medical College of Ohio		(1897)	Ohio
Gate City Medical College		(1905)	Arkansas

* Not a graduate until 1929.

Book Notices

DER KREBS DES MENSCHEN. Eine Morphogenetische Untersuchung. Von Dr. Eugen Bostroem. Paper. Price, 12 marks. Pp. 176, with 17 illustrations. Leipzig: George Thieme, 1928.

The investigation reported in this monograph is a microscopic study of the relation between tumor cells and the capillaries in the tumors. Discussion of this is well illustrated from excellent hand drawings. One misses references to serial sectioning and to the employment of any considerable number of staining methods. Interwoven with the discussion are many references to work and opinions expressed by others. The author frankly denies that tumors grow from cells already differentiated, and traces all tumors to proliferation of indifferent mesenchymal cells about blood vessels. He believes that cancer is a general metabolic disease caused by poisons from the bowel and that tumor growth at first localized is but one of the symptoms. Owing to the evidence displayed of the literature of cancer research, the thesis is entertaining although not particularly convincing. There is an extensive bibliography.

FOLKLORE OF THE TEETH. By Leo Kanner, M.D. Cloth. Price, $4. Pp. 316, with illustrations. New York: Macmillan Company, 1928.

In this book the author has gathered together a wealth of folkloristic material on the teeth as revealed in the legends, traditions, popular beliefs and customs of peoples the world over and throughout the ages. The book is divided into five sections, on number, shape and eruption, popular dental hygiene, toothache and its cure, the artificial deformation of the teeth, and teeth as used outside the oral cavity. The sections of greatest interest to the casual reader are perhaps those on hygiene and on toothache. Though there may be doubt as to the scientific value of the material presented, it will interest those who like to delve into the strange fancies, beliefs and superstitutions of the human race. The author is to be commended for his industry in making available such an exhaustive compilation of data relating to the teeth.

STRÜMPEL-SEYFARTH LEHRBUCH DER SPEZIELLEN PATHOLOGIE UND THERAPIE DER INNEREN KRANKHEITEN. Für Studierende und Aerzte. Band I. Van Dr. Med. et Phil. Carly Seyfarth, a. o. Professor für innere Medizin an der Universität Leipzig. Twenty-Seventh edition. Paper. Price, 25 marks. Pp. 872, with 182 illustrations. Leipzig: F. C. W. Vogel, 1928.

Under a fine picture of Strümpel opposite the title page are dates of his birth and death and the years of his many academic appointments. Reading this simple record is like the study we give to inscriptions on the base or pedestals, before reveling in the beauty of form and action of statues they support. This monument to Strümpel is now definitely taken over by Seyfarth to care for and maintain. It is the first "Strümpel-Seyfarth," although a number of previous revisions had their joint labors. In the gradual upbuilding of this great work, symmetry has always been conspicuous. A strategic balance through small needed supplements and elaborations, the betterment of a plate, a few improved illustrations and changes in type have been matters of continual study; for new editions, with a few exceptions, have been annual events. With this wise policy adhered to in the many editions which presumably will follow, it is difficult to believe the work will ever become so altered that it will fail to be recognized as Strümpel's Practice of Medicine by the many who have long profited from its use. There is little to add to the review of the first volume of the previous edition. An account of syphilis of the stomach is altogether new, and the other changes in descriptions of amebic dysentery, sepsis, tetanus, bronchial asthma, and the diagnosis of pulmonary tuberculosis are simply introductions of a few new paragraphs, or minor changes in the text of last year. Here and there throughout the work are portions reduced to smaller type with saving of space and no loss of attractiveness. Agranulocytic and monocytic angina have their first inclusion. For the first, the name sepsis agranulocytotica is suggested. This is a disease of adults and often fatal, whereas monocytic angina affects children and has a low mortality. The

brief but excellent consideration given to modern ideas of sensitization to specific antigens in asthma and to the diagnosis and treatment with such antigens is also new; likewise are a few paragraphs devoted to the use of tuberculin in diagnosis. The account of amebic dysentery is rewritten. There are twelve more illustrations and only two more pages. With the publication of this new edition in English, its counterpart appeared in Spanish.

Local Anesthesia. A Short Course for Students and Surgeons. By Géza de Takáts, M.D., M.S., Assistant Professor of Surgery, Northwestern University Medical School. With a foreword by Allen B. Kanavel, A.B., M.D., D.Sc., Professor of Surgery, Northwestern University Medical School. Cloth. Price, $4. Pp. 221, with 117 illustrations. Philadelphia: W. B. Saunders Company, 1928.

This work does not pretend to be an elaborate or comprehensive exposition of the subject of local anesthesia but is a short and concise review of methods that have proved to be safe and successful. It recognizes and emphasizes the need of a thorough knowledge of anatomy if one would be sucessful with local anesthesia; in fact, a lack of this is the most common cause of failure. It is an excellent guide to students of the subject.

League of Nations—Health Organisation. International Health Year-Book, 1927. (Third Year.) Reports on the Public Health Progress of Twenty-Seven Countries in 1926. Paper. Pp. 802. Geneva: League of Nations, 1927.

This volume is a mine of vital statistics and of information concerning the health of most of the important nations and of many minor nations. Some explanatory text accompanies the tables and some material that cannot well be reduced to tables appears in expository form. The presentation is brief, however. Material on area, population, birth rate, death rate, infant mortality and legislation appears with regularity. Special problems or subjects of special interest to the various nations also are presented. The problems of England and Wales may be considered similar to those of the United States. Some of the matters aside from vital statistics that are taken up in the report from England and Wales are international health work, lunacy and mental deficiency, nurses' registration act of 1919, voluntary hospitals, sanitary administration, inspection and supervision of food, prevention and treatment of infectious diseases, maternity and child welfare, welfare of the blind, housing, town planning and national health insurance.

Sir Isaac Newton,1727-1927. A Bicentenary Evaluation of his Work. A Series of Papers Prepared Under the Auspices of the History of Science Society in Collaboration with the American Astronomical Society, the American Mathematical Society, the American Physical Society, the Mathematical Association of America and Various Other Organizations. Edited by Frederick E. Brasch. Cloth. Price, $5. Pp. 351, with 1 portrait. Baltimore: Williams & Wilkins Company, 1928.

This book was issued on the two hundredth anniversary of Newton's death. The History of Science Society intended that it should appeal to educated readers in general. Accordingly "the several authors set about to popularize their records of his (Newton's) contributions to scholarship, but without vulgarizing them." David Eugene Smith, in addition to writing the introduction, contributes a chapter on Newton in the light of modern criticism. Dayton C. Miller's contribution deals with Newton and optics. A paper by George David Birkhoff describes Newton's philosophy of gravitation, with especial reference to modern relativity ideas. William Wallace Campbell writes on Newton's influence on the development of astrophysics. Michael Idovrsky Pupin discusses Newton's dynamics. Paul R. Heyl writes on Newton as an experimental philosopher. Ernest W. Brown points out developments following from Newton's work. Florian Cajori explains Newton's twenty years' delay in announcing the law of gravitation, and in another chapter writes on Newton's fluxions. There are three fields of Newton's work which are little appreciated. These are set forth in chapters on Newton's work in alchemy and chemistry, by Lyman C. Newell; Newton's place in the history of religious thought, by George S. Brett, and Newton in the mint, by George E. Roberts. Of particular interest to American biographers is the chapter by Frederick E. Brasch on Newton's first critical disciple in the American colonies—John Winthrop. The entire work is ably done.

Opuscula selecta neerlandicorum de arte medica. Fasciculus sextus quem curatores miscellaneorum quae vocantur. Nederlandsch Tijdschrift voor Geneeskunde. Collegerunt et ediderunt Amstelodami Sumptibus Societatis. Cloth. Pp. 352, with illustrations. Amsterdam, 1927.

Opuscula selecta neerlandicorum de arte medica. Fasciculus septimus quem curatores miscellaneorum quae vocantur. Nederlandsch Tijdschrift voor Geneeskunde. Collegerunt et ediderunt Amstelodami Sumptibus Societatis. Cloth. Pp. 334. Amsterdam, 1928.

These volumes, published under the auspices of the *Nederlandsch Tijdschrift voor Geneeskunde*, contain reprints of classic medical Dutch publications. Volume VI begins with an introduction by E. C. van Leersum and contains Franciscus Sylvius, also known as Franciscus de le Boë or Deleboe (1614-1672), "de Hominis Cognitione"; Jan Swammerdam's (1637-1680) treatise on the respiration and the use of the lungs; Regner de Graaf's (1641-1673) treatise on the nature and uses of pancreatic juice, and J. L. C. Schroeder van der Kolk's address on the care of the insane, delivered in 1837, in the original Dutch with English translation. The other publications in this volume are reproduced in the original Latin with translations into Dutch.

Volume VII is a reproduction of "The Book of Surgeries" of Master Thomas Scellinck from Thienen, edited by E. C. van Leersum. The introduction is printed in Dutch and in English. Scellinck's Book of Surgeries is reproduced in the original medieval Dutch and provided with a long list of explanations of words and a bibliography. The reproduction is based on the comparative study of the only two manuscript copies known to be in existence, one in the Royal Library at the Hague and the other in the Library of the British Museum. This book is a very important source of knowledge in regard to medieval surgery in the Netherlands. It was finished in 1343.

These volumes are of great interest and value to students of the history of medicine.

Special Cytology. The Form and Functions of the Cell in Health and Disease. A Textbook for Students of Biology and Medicine. Two Volumes. Edited by Edmund V. Cowdry, the Rockefeller Institute for Medical Research. Leather. Price, $20 net. Pp. 1348, with 693 illustrations. New York: Paul B. Hoeber, Inc., 1928.

Edmund V. Cowdry, the editor, in the preface to this work, presents its purpose and scope. It is supplementary to a former volume, which was entitled "General Cytology" and which was issued from the University of Chicago Press in 1924. Each division of the new volumes was assigned to a worker who has personal knowledge of his subject. The authors have all, in the course of their investigations, studied the fundamental units, the cells, of the tissues in which they are interested, and some of them "are mildly surprised to find that they are classified as cytologists." But they have done their work more completely than did the older workers who were classed as cytologists. The object of the work is "to present a detailed statement of the types of cells which make up the body, and which serve different functions; the nerve cells, gland cells, blood cells, and others." Certain restrictions have been necessary. Consequently the subject matter is largely limited to the cells of the adult human being, and historical matters as a rule have not been included. Alexis Carrel in the introduction shows how cytology has progressed beyond the classic technic of microscopic anatomy. In order to accomplish its aim, which is "the discovery of the principles which cause a cell to be simultaneously an individual and one of the building stones of the organism," cytology must employ methods of studying the living cell both in situ and in tissue culture. "Cell metabolism and morphology depend on the qualitative and quantitative characteristics of the humors. The study of a cell cannot be separated from that of the medium." The metabolic condition of the structure under investigation also must be investigated. Much has been accomplished by the few who have departed on the new methods. Much more remains to be done in the new directions already mentioned and in the fields of vital staining, histochemistry and cinematography. To be assured that this compendium of modern information in special cytology has been well made it is necessary only to read the names of the contributors: Arey, Bailey, Bensley, Bunting, Carrel, Cohn, Corner, Cowdry, Downey, Huber, Key, Krumbhaar, Kuntz, Loeb, Macklin, Malone, Mann, Marine, Maximow, Meigs, Metz, Miller, Opie, Penfield, Rasmussen, Schaeffer, Shambaugh, Shipley, Stewart, Stockard, Stormont, Tilney, Todd, Wislocki.

MONOGRAPHIEN AUS DEM GESAMTGEBIET DER PHYSIOLOGIE DER PFLANZEN UND DER TIERE. Herausgegeben von M. Gildmeister, R. Goldschmidt, C. Neuberg, J. Parnas, und W. Ruhland. Band XV. Die äussere Sekretion der Verdauungsdrüsen. Von B. P. Babkin, Dr. Med., D.Sc., Professor der Physiologie an der Dalhousie Universität, Halifax, N. S. Second edition. Paper. Price, 68 marks. Pp. 886, with 145 illustrations. Berlin: Julius Springer, 1928.

This revised and greatly enlarged edition of Babkin's work on the digestive glands and their secretions is probably the most comprehensive critical monograph on that subject in any language today. The author, Dr. Babkin, is a pupil of Pavlov, has held research and teaching positions in the Universities of Leningrad and London, and is now professor of physiology in Dalhousie University, Canada. The monograph is well indexed and illustrated, and abundant references to the literature appear at the bottom of each page. In addition to the subject treated according to the title, the concluding chapter deals with the motor phenomena of the alimentary canal as related to the secretions. The monograph is a distinct contribution to physiology and to medicine.

THE MIND OF THE GROWING CHILD. Edited by Viscountess Erleigh. With a preface by Sir James Crichton-Browne. Cloth. Price, $1.75. Pp. 229. New York: Oxford University Press, 1928.

This consists of a collection of lectures by experts and highly competent investigators in child welfare delivered before an English child study group. They have been left in the form of lectures and not transformed into articles. The lectures do not constitute a complete treatise on child study and are necessarily somewhat desultory and fragmentary. They cover a wide field, ranging from infancy to adolescence, from the backward child to the prodigy, from the subconscious mind to emotional excitation. The insistence on individuality is a valuable feature, and that the function of education is to direct and control the child's spontaneity. The subjects treated in this book have all been chosen by mothers as subjects on which they desired information, and the problems raised will be found to be those occurring most frequently in all nurseries—heredity and environment; temperament; fear; the backward child; children's books. The lectures are general in scope and are more stimulating for further reading than specifically informative; consequently the books for further reference are mentioned after each lecture.

HANDBUCH DER INNEREN SEKRETION. Eine umfassende Darstellung der Anatomie, Physiologie und Pathologie der endokrinen Drüsen. Lieferung 4. Band I. Herausgegeben von Dr. Max Hirsch. Paper. Price, 27 marks. Pp. 473-708, with illustrations. Leipzig: Curt Kabitzsch, 1928.

This section contains a chapter of the normal and pathologic anatomy of the suprarenal glands by Dr. Jaffe and Dr. Tannenberg, and a short chapter on the normal and pathologic anatomy of the midbrain of the sympathetic and parasympathetic nervous system by Dr. Josephy. These chapters are critically presented and well illustrated, each chapter having a comprehensive literature appended.

TRAITÉ DE PHYSIOLOGIE NORMALE ET PATHOLOGIQUE. Par G.-H. Roger, professeur de physiologie à la Faculté de médecine de Paris. Tome III: Physiologie du foie et de l'appareil urinaire. Par MM. M. Chiray, L. Cuénot, Ch. Dubois, I. Pavel, F. Rathery, et G.-H. Roger. Leather. Price, 85 francs. Pp. 751, with illustrations. Paris: Masson & Cie, 1928.

TRAITÉ DE PHYSIOLOGIE NORMALE ET PATHOLOGIQUE. Par G.-H. Roger, professeur de physiologie à la Faculté de médecine de Paris. Tome IV. Les sécrétions internes. Par Mm. J.-E. Abelous, R. Argaud, M. Garnier, et autres. Boards. Price, 80 francs. Pp. 585, with 28 illustrations. Paris: Masson & Cie, 1928.

Volume III of this monographic work contains chapters on the liver by Dr. Roger, a chapter on the evacuation of bile by Drs. Chiary and Pavel, a short chapter on the so-called liver of invertebrates by Dr. Cuénot, chapters on the physiology of the kidney by Dr. Rathery, and a final chapter on the excretion of urine by Dr. Dubois. The material is presented exhaustively and in most cases critically; the references to the literature, however, are not as extensive as one would expect in monographic work as ambitious as this.

Volume IV deals entirely with the endocrine glands and the nine chapters are written by Drs. Abelous, E. and L. Hédon, Argaud, Garnier, Soula, Parisot, Richard, Huguenin, Turpin, Laignel-Lavastine, Tournade and Roussy. Of these various men the most competent to handle their respective subjects are the Hédons, who present the chapter on the pancreas, and Dr. Roussy, who prepared a chapter on the hypophysis and infundibular region of the brain, as these men have done extensive and reliable experimental work in these fields. Consequently the chapters have unequal authority and value. As an example of plethora in the treatment of particular chapters might be pointed out the forty-five pages devoted to the pineal gland as an endocrine organ. The author of this chapter, Dr. Laignel-Lavastine, is not a noted worker in the endocrine field and yet (or possibly therefore) he concludes that the pineal body is an endocrine organ.

EAT, DRINK AND BE HEALTHY. An Outline of Rational Dietetics. By Clarence W. Lieb, M.A., M.D. Cloth. Price, $1.50 net. Pp. 180. New York: John Day Company, 1928.

Despite the promises of introduction and preface, this book distinctly fails as an outline of rational dietetics, since it promotes some fads, and has some contradictions and inaccuracies. "The modern delicatessen is doing more to ruin the digestion of city folk than any bridal cooking ever did" sounds interesting but would be difficult of proof. The author's personal attitude with regard to the combination of animal protein and concentrated carbohydrate is so radical that it should be submitted to scientific proof before being clothed in dogmatic language for lay persons.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

DISEASES OF THE GALL BLADDER AND BILE DUCTS. A Book for Practitioners and Students. By Evarts Ambrose Graham, A.B., M.D., Professor of Surgery, Washington University School of Medicine; Warren Henry Cole, B.S., M.D., Instructor in Surgery, Washington University School of Medicine; Glover H. Copher, A.B., M.D., Assistant Professor of Surgery, Washington University School of Medicine, and Sherwood Moore, M.D., Professor of Radiology, Washington University School of Medicine. Cloth. Price, $8 net. Pp. 477, with 232 illustrations. Philadelphia: Lea & Febiger, 1928.

A reflection of the researches of the Washington University group on the diagnosis and treatment of biliary tract diseases.

CONSTITUTIONAL INADEQUACIES. An Introduction to the Study of Abnormal Constitutions. By Nicola Pende, M.D., Professor of Clinical Medicine, Royal University of Genoa, Italy. Translated by Sante Naccarati, M.D., Sc.D., Ph.D., Associate Professor of Nervous and Mental Diseases, Post-Graduate Medical School of New York. With a foreword by George Draper, M.D., Assistant Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University. Cloth. Price, $3.50 net. Pp. 270, with 11 illustrations. Philadelphia: Lea & Febiger, 1928.

Translation of an Italian monograph which considers human beings and their variations classified in types.

FUNDAMENTAL GYMNASTICS. The Basis of Rational Physical Development. By Niels Bukh, Principal, Gymnastic Peoples College, Ollerup, Denmark. Translated from the second Danish edition, rearranged and adapted for use in America by Emily Russell Andrews, Instructor in the Theory and Practice of Gymnastics and Self-Testing Activities, and Karen Vesterdal, Instructor of Song Games, American Summer Courses, Ollerup, Denmark. Cloth. Price, $2. Pp. 202, with illustrations. New York: E. P. Dutton & Company, 1928.

Gymnastic exercises described with formulas, diagrams and uses.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS OR THE ACTION OF DRUGS IN HEALTH AND DISEASE. By Arthur R. Cushny, M.A., M.D., LL.D. Ninth edition revised by C. W. Edmunds, A.B., M.D., Professor of Materia Medica and Therapeutics in the University of Michigan, and J. A. Gunn, M.A., M.D., D.Sc., Professor of Pharmacology in the University of Oxford. Cloth. Price, $6 net. Pp. 743, with 73 illustrations. Philadelphia: Lea & Febiger, 1928.

New edition of a pharmacologic classic.

HOW ANIMALS FIND THEIR WAY ABOUT. A Study of Distant Orientation and Place-Recognition. By Etienne Rabaud, Professor of Experimental Biology in the University of Paris. Translated by I. H. Myers, M.A. Cloth. Price, $2.75. Pp. 142, with 30 illustrations. New York: Harcourt, Brace & Company, 1928.

Investigation indicating that sensory memories enable ants, bees and birds to find their way home.

The Nose, Throat and Ear. By John F. Barnhill, M.D., F.A.C.S., Professor Surgery of the Head and Neck, Indiana University School of Medicine. Cloth. Price, $7.50. Pp. 604, with 452 illustrations. New York City: D. Appleton & Company, 1928.

Excellent practical one volume consideration of otorhinolaryngology.

The Eye. By C. W. Rutherford, M.D., F.A.C.S., Associate in Ophthalmology, Indiana University School of Medicine. Cloth. Price, $7.50. Pp. 404, with 317 illustrations. New York City: D. Appleton & Company, 1928.

Handsomely prepared guide to anatomy and to diseases of the eye.

The Extra Pharmacopœia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., Ph.Ch., F.C.S. In two volumes. Volume I. Nineteenth edition. Cloth. Price, 27/6d net. Pp. 1207. London: H. K. Lewis & Company, Ltd., 1928.

New edition of encyclopedic guide to nonofficial remedies.

Practical Biochemistry for Students. By E. W. H. Cruickshank, M.D., D.Sc., Ph.D., Professor of Physiology, Prince of Wales Medical College, Patna. Cloth. Price, 12/6d net. Pp. 275, with 21 illustrations. London: Butterworth & Company, 1928.

Laboratory guide with succinct statements in large type.

Manuel de bactériologie médicale. Par André Philibert, professeur agrégé de bactériologie. Cloth. Price, 55 francs. Pp. 551, with 21 illustrations. Paris: Masson & Cie, 1928.

French outline of bacteriology on poor paper and in outline form.

Handbuch der pathogenen Mikroorganismen. Herausgegeben von W. Kolle, R. Kraus, und P. Uhlenhuth. Lieferung 20. Band IV. Die Gasödeminfektionen des Menschen. Von Dr. J. Zeissler. Rauschbrand. Von Geh. Reg.- und Vet.-Rat Dr. H. Foth. Botulismus. Von Prof. Dr. K. F. Meyer. Third edition. Paper. Price, 21 marks. Pp. 1093-1364, with 10 illustrations. Jena: Gustav Fischer, 1928.

Handbuch der pathogenen Mikroorganismen. Herausgegeben von W. Kolle, R. Kraus, und P. Uhlenhuth. Lieferung 19. Band IX. Maul- und Klauenseuche. Von Prof. Dr. O. Waldmann, und Dr. K. Trautwein. Virusschweinepest. Von Prof. Dr. P. Uhlenhuth, H. Miessner, und W. Geiger. Third edition. Paper. Price, 13 marks. Pp. 189-356, with 26 illustrations. Jena: Gustav Fischer, 1928.

Histologischer Atlas von Zupfpräparaten unfixierter menschlicher Organe und Gewebe. Von Dr. phil. et med. Hanns Plenk, Privatdozent fur Histologie an der Universität Wien. Paper. Price, 6 marks. Pp. 60, with 77 illustrations. Vienna: Julius Springer, 1928.

Informe correspondiente al año de 1927, que el Director de Sanidad Nacional presenta al Ejecutivo Federal por órgano del Ministro de Relaciones Interiores. Paper. Pp. 188, with illustrations. Caracas: Litografia del Comerçio, 1927.

A Manual of Tuberculosis Legislation. By James A. Tobey, LL.B., Dr.P.H., Director of Health Service, the Borden Company, New York. Paper. Price, 50 cents. Pp. 86. New York: National Tuberculosis Association, 1928.

Goiter Prevention and Thyroid Protection. By Israel Bram, M.D., Medical Director, Bram Goiter Institute, Upland, Pa. Cloth. Price, $3.50 net. Pp. 327, with 13 illustrations. Philadelphia: F. A. Davis Company, 1928.

Asthma. Von Privatdozent Dr. Ludwig Hofbauer, Leiter der atmungspathologischen Abteilung der 1. medizinischen Klinik, Wien. Paper. Price, 10.80 marks. Pp. 156, with 38 illustrations. Vienna: Julius Springer, 1928.

Kausalität und Vitalismus vom Standpunkt der Denkökonomie. Von Hans Winterstein, Professor der Physiologie, Universität Breslau. Second edition. Paper. Price, 4.80 marks. Pp. 51, Berlin: Julius Springer, 1928.

L'exploration radiologique en gynécologie, technique, resultats. Par Claude Béclère, interne des Hôpitaux de Paris. Paper. Price, 45 francs. Pp. 175, with 61 illustrations. Paris: Masson & Cie, 1928.

Chirurgie de l'estomac et du duodénum. Par Henri Hartmann, professeur de clinique chirurgicale. Paper. Price, 60 francs. Pp. 340, with 142 illustrations. Paris: Masson & Cie, 1928.

Grundriss der arzneimittellehre für die Behandlung von Hautkrankheiten. Von Dr. Kurt Fürst. Paper. Price, 6 marks. Pp. 144. Leipzig: Georg Thieme, 1928.

Wie soll der Arzt in der Praxis Stoffwechselkrankheiten behandeln? Von Prof. Dr. P. F. Richter. Paper. Price, 3.60 marks. Pp. 78. Leipzig: Georg Thieme, 1928.

Thirty-ninth Annual Report of the Wesley Memorial Hospital, 1927. In Memory of William Deering and Abby Deering Howe. Chicago, 1928.

Miscellany

THE INTERNATIONAL CONFERENCE ON CANCER

The International Conference on Cancer was held this year under the auspices of the British Empire Cancer Campaign. Sir John Bland-Sutton presided over an assembly drawn from twenty-five countries and comprised of 120 foreign and dominion delegates and 180 from Great Britain and Ireland. Great interest was shown in the work of Dr. James B. Murphy of New York and Dr. Archibald Leitch of the Cancer Hospital, London, on a growth-producing substance and its relation to the Rous chicken sarcoma. The consensus seems to be that the evidence advanced by Dr. Murphy that the growth-producing substance is an enzyme or ferment, and not a living virus, is substantial. The Rous chicken sarcoma was discovered in 1912 by Rous and Murphy in Plymouth Rock fowls. They found that the tumor would grow (when transplanted) only in blood-related animals of that special family of Plymouth Rocks. At the "fourth generation" of transplants they got it to grow in another pure-bred Plymouth Rock family. After eight further "generations" the tumor became transplantable to further families; nevertheless, as Dr. Murphy states, "after many years of transplantation we have never succeeded in transferring the tumor to other species of fowls, such as guinea-fowls, ducks, geese and pigeons." The chicken tumor, therefore, bore evidently some close relationship to the soil in which it could grow. Later researches by Rous and Murphy revealed three other chicken tumors, each different and distinct from its neighbors. All these four types of tumor proved "fastidious" about their place of growth. These chicken tumors evidently contained a growth-producing agency because, if pounded up and filtered, the filtrate when injected into healthy chickens caused the growth of tumors exactly resembling the tumor from which it had been extracted, and only fowls of the particular family in which the original tumor had grown were susceptible. Rous and Murphy did not know the nature of the growth-producing agent. They recognized, however, that a difference existed between the chicken tumors and the cancers of animals and man; for if a cancer from, say, a mouse or rat is pounded up and filtered, the filtrate will not cause cancers in mice or rats of the same family. This difference led many authorities to deny that these chicken tumors were true cancers. A prolonged battle has raged around this point. Now the idea that the chicken tumors are true cancers is all but universally accepted.

At the conference, Dr. Archibald Leitch said that though he still retained some doubts he did "admit without further reservation that those filtrable tumors of fowls are very closely allied to neoplasms as we know them in mammals and that they are capable of supplying information to us in our study of neoplasms in general." The fact that the chicken tumors showed this difference from mammalian tumors led to the idea that they were caused by a living "virus" so small that it could pass through a very fine filter. This idea received a strong impetus three years ago when Gye and Barnard claimed that they had discovered the living virus in chicken tumors and had seen it under the microscope. Murphy and Leitch, however, retained doubts about Gye's work. These doubts were based on the remarkable "fastidiousness" of the tumors and on the fact that each type bred true. Murphy tested the living virus theory by various devices. One consisted in subjecting living bacteria and living viruses, on the one hand, and the chicken tumor agent, on the other, to the action of ultraviolet radiation. While the bacteria and viruses were killed by hundreds of units of ultraviolet energy, the tumor agent required exposure to thousands, or tens of thousand, of units before it was inactivated. The inference was that some radical point of difference existed

between known types of bacteria and viruses and this tumor agent. It was then found that if into the fluid containing the tumor agent some finely minced muscle from a susceptible chicken was introduced (a chicken belonging to the particular family of Plymouth Rocks favored by the tumor), the tumor agent completely lost its power. It would no longer cause tumors. Minced muscle from a chicken not belonging to the family of Plymouth Rocks favored by the tumor did not possess this inhibitory power. The inference was that some close relation existed between the muscle of the favored chicken and the tumor agent. These chicken tumors grow in muscle and nowhere else. Other tissues, the brain, liver or kidney, even from a favored chicken, did not rob the tumor agent of its power. A living virus would scarcely show this close relation to a particular tissue of a particular family of Plymouth Rock fowls. Dr. Murphy has not yet, however, fully satisfied himself. He said at the conference: "To me the enzyme-like nature of the principle seems to have been conclusively established, but there may be some who would still maintain that, in spite of all, the possibility of a virus is not excluded. The final and crucial proof must be the production of the same substance (the tumor agent) from materials which certainly do not contain a virus. This has been accomplished. I have isolated from such normal tissues as the testes of normal fowls, not in contact with any tumor-bearing animals, a similar agent, with which I have produced the typical tumor, transplantable in over 90 per cent of fowls." Leitch, working independently, produced a chicken tumor by injecting the pancreas of a normal fowl into another normal fowl. Further, Murphy devised an electrical method by which he has been able to obtain a purified extract of the tumor agent or "growth-producing substance." This appears to be a nucleoprotein. "It is hardly conceivable," said Murphy, "that the active fraction" (the purified tumor agent) "which I have thus succeeded in obtaining, a substance purified by repeated precipitations, could carry with it through all these manipulations any living organism or virus."

These researches point to the conclusions that the tumor agent is a chemical body of the nature of a ferment, and not a living virus, and that this body is present in many normal tissues. As soon as one cell has been transformed by its appropriate and special growth-producing substance into a tumor or cancer cell this begins to grow, and probably, in turn, throws out a growth-producing substance which transforms its neighbor. A tumor is soon formed. And there is no going back. It is evident, then, that, in fowls at any rate, the growth-producing substance is always present. It is held in check, perhaps, by a growth-preventing substance and possibly the two balance each other in healthy cells. The addition, from outside, of extra growth-producing substance of the same "blood relationship" may conceivably upset the balance in one or two cells, and this "upset" may then spread from cell to cell just as a rebellion may spread from citizen to citizen once it has been established in a few minds. The similarity existing between this growth-producing substance in the fowl and the known cancer-producing substances which have been studied in recent years is striking. These cancer-producing substances include mineral oils, tar, x-rays, radium, and certain parasitic worms. Leitch, discussing this point, said: "We cannot therefore admit that tumors are the result of irritation in general; they are the end-result produced by quite definite stimulants. Again, a substance that is capable of producing cancer in one species may be entirely ineffective with another species. Thus, a coal tar or a mineral oil which readily induces cancer in the skin of mice in a very few months fails to elicit any neoplastic response whatever in guinea-pigs in several years; indeed, in the closely allied species of rats, epitheliomas are only very exceptionally induced. Another cancer-producing agent, *Cysticercus fasciolaris*, in the liver of rats frequently produces sarcoma but in the liver of mice causes no cell proliferation whatever." The work on cancer-producing parasites of Fibiger and Bullock has revealed the fact that cancer-producing substances arising in the animal kingdom show the same curious fastidiousness in their choice of a "soil" as do the tumor agents of fowls and the mineral and radiologic cancer-producing substances.

Loeb read a paper at the conference suggesting that cancer-producing substances are manufactured and set free by the body itself in the normal course of its activity. He found that cancer of the breast in mice can be prevented, even in susceptible families of mice, by early removal of the ovaries. It would appear then that there are many causes of cancer, and that each cause selects its own particular animal, and even its own particular site, as skin or muscle or liver. In each case the healthy body cell at the favored site is stimulated in such a way that it is transformed into a cancer cell and so enabled to assume rapid growth, and perhaps to exert influence, by means of its own growth-producing substance, on its neighbors. On this view an upset of a "balance" between growth-producing and growth-preventing substances in healthy body cells may occur before cancer begins. We now can upset the balance on the side of growth-producing substances. The researches of Maisin of Louvain with the radioactive substance ionium are a fresh illustration of this power. Hence the hope that power to redress the balance in favor of growth-preventing substances may be acquired.

Medicolegal

Standard for Surgeon and Plastic Surgery Specialist

(Say v. Barber et al. (Calif.), 262 Pac. R. 312)

The Supreme Court of California, in affirming a judgment in favor of the plaintiff against the defendants as damages sustained by the plaintiff as a result of an operation alleged to have been negligently performed on the plaintiff's face by one of the two defendants who was a physician, says that the defendants asked a reversal of the judgment on the ground that the complaint failed to state sufficient facts to constitute a cause of action for malpractice, and that the evidence was insufficient to support the findings. In support of the first ground, the defendants claimed that the complaint did not state specific facts showing the negligence complained of or that contributed to the injury of the plaintiff. It was alleged in the complaint that the defendants performed the operation, and in doing so "neglected to use proper care and skill in the performance of said operation, and performed said operation in a careless and negligent manner, and as a proximate consequence and cause thereof the plaintiff" sustained the damage complained thereof. No objection was made to the complaint at or prior to the trial, or at any time in the court below. On the other hand, it was treated by all parties as stating a good cause of action against the defendants for negligence. Such an objection comes too late if made for the first time on appeal. However, a complaint in many of its essential features like the one in the present action was approved by this court in the case of *Hall* v. *Steele*, 193 Calif. 602, 605, 226 Pac. 854.

With regard to the contention that the findings were not supported by the evidence, it was first contended that the defendant physician was not bound by certain statements and representations made by the other defendant, in the absence of any evidence that the two defendants—one of whom was conducting a beauty parlor and the other was a physician specializing in plastic surgery—were associated together in carrying on a joint business. There was no merit in this contention, in view of the admissions in their answer that "defendants are engaged in the business of beauty culture and plastic surgery," and "hold themselves out as being capable of performing this operation with skill." The further claim was made that the evidence did not sustain the finding that the defendants were

guilty of negligence in the performance of the operation resulting in the disfigurement of the plaintiff's face. A surgeon does not guarantee a good result. His undertaking is to use the skill and learning of the average member of his profession in good standing, to exercise reasonable care, and to exert his best judgment in an effort to bring about a good result. The trial court found that the acts of the defendants in performing the operation on the plaintiff's face did not measure up to this standard. This conclusion found support in the testimony of the plaintiff and her sister, and in that of a physician who was a witness for the plaintiff. The finding, therefore, of negligence on the part of the defendants was justified by the evidence.

Some Rules with Regard to Dying Declarations

(State v. Tubbs (Vt.), 139 Atl. R. 769)

The Supreme Court of Vermont says, in this homicide case, that the admission of dying declarations is one of the exceptions to the rule against hearsay evidence, and, under certain conditions, such declarations have always been admitted in cases of homicide, both from necessity and because the near approach of death is supposed to impress the mind with as solemn an obligation to speak the truth as would the administration of an oath. While the general rule is that, to make dying declarations admissible in evidence, they must be made under a consciousness on the part of the declarant of impending death, the rule is stated variously. The rule in Vermont is that to make such declarations admissible in evidence they "must be made under the full and firm belief of near and approaching death." Such belief may be inferred not only from the statements of the declarant but also from his statements and the nature of his wounds and other circumstances combined. Before dying declarations are admissible in evidence, the court must find that, at the time they were made, the declarant was sane, if that question is raised, and that they were made under the belief of near and approaching death. If the question is not raised, the presumption is that the declarant was sane when the declarations were made, but, when the question is raised, the sanity of the declarant must be satisfactorily proved. The fact that the dying declarations were made in response to questions is no objection to their admission. The rule that dying declarations must be complete does not mean that all of the affair of the death must be related. It means that the statement must be complete as far as it goes. If a dying person finishes the statement he wishes to make, it is no objection that he has told only a portion of what he might have been able to tell. If there was error in this case, as it was contended, in the admission of the statements made by the declarant which were taken through an interpreter (which this court does not decide), the error was harmless, because similar statements made by the declarant, which were not disputed and which were not subject to this objection, were received in evidence.

As to Liability for Displacement of Fractured Bones

(Feltman v. Dunn (S. D.), 217 N. W. R. 198)

The Supreme Court of South Dakota, in reversing a judgment which was rendered for the plaintiff, says that in an accident she broke both her arms just above the wrist joints, and broke both bones of one leg at the ankle joint. In her complaint she alleged damages for negligent and unskilful treatment of her leg and one wrist, but at the trial she abandoned her claim for injury to her wrist. Up to the time, at least, when the cast was put on the leg, there had been no negligence or lack of skill on the part of the defendant, and there was no evidence to indicate, and no claim was made, that anything was done or omitted by the defendant or any one else while the plaintiff was in the hospital to bring about the condition of the fracture that was shown to exist when the cast was removed. Neither the plaintiff nor any other witness in the case testified that the defendant ever told the plaintiff that she might leave the hospital or consented to her leaving. Moreover, it was perfectly plain that when she left the hospital she thought she did not need the further services of the defendant, and that her mother-in-law could take just as good care of her as the nurses at the hospital. At the close of the plaintiff's testimony, and again at the close of all the testimony, the defendant moved for a directed verdict, on the ground, among others, that the evidence was insufficient to support a verdict for the plaintiff. This motion should have been granted.

In *Dean* v. *Seeman*, 42 S. D. 577, 176 N. W. 649, this court adopted, and has since followed, what it believes to be the universal rule in such cases, namely:

> The mere fact that the broken bone did not stay in place after it had been set and did not grow together in the usual length of time does not necessarily prove, nor even imply, that appellant was negligent or unskilful. Physicians and surgeons are not to be held responsible for results, but only for the kind of service rendered by them.

In order to hold a physician or surgeon liable in damages in this class of cases, it is necessary to show that the condition complained of must have resulted from the negligent or unskilful conduct of himself or of others acting under his direction.

In this case the evidence showed that the fracture of the plaintiff's ankle was properly reduced, April 26. Roentgenograms that were taken when the splint was removed, May 3, proved beyond any doubt that the bones were in proper position at that time. Whether it was possible that the bones became displaced while the defendant was putting on the plaster cast this court does not know, and it is not necessary to decide. There was no evidence tending to prove that anything of the kind did happen either then or while the plaintiff remained in the hospital. The evidence did tend to show, however, that it was not only possible but highly probable that the displacement of the fractured bones was caused by the manner in which the plaintiff was handled when she was removed from the hospital, but this was not done by the defendant, and he was not liable for anything that happened after the plaintiff left the hospital.

There was testimony in the record tending to show what was said and done by the defendant after the cast was removed from the plaintiff's leg. Nothing that was said or done by the defendant after the removal of the cast was at all material to the case. The plaintiff's entire case was based on the fact that the bones of her ankle had been displaced at the fracture and had grown together in such manner as to leave her ankle weak and crooked and painful, but the evidence failed to show that the defendant was responsible for this condition, and the plaintiff was not entitled to recover. The defendant's motion for a directed verdict should have been granted and the action dismissed.

In What Negligence on Part of Physician Consists

(Swanson v. Wasson (Idaho), 262 Pac. R. 147)

The Supreme Court of Idaho, in affirming a judgment on a verdict directed for the defendant physician, says that this action was brought to recover damages for alleged malpractice, but no useful purpose could be served by setting out the testimony of the various witnesses, since it clearly appeared from the record that the plaintiff failed to introduce sufficient evidence to warrant the court in submitting the case to the jury.

Negligence on the part of a physician consists in his doing something which he should not have done, or in omitting to do something which he should have done. There was no evidence in the record in this case which showed, or tended to show, that the defendant was negligent in doing something which he should not have done. The plaintiff's contention rested on the theory that the defendant failed to do some things which he should have done. The rule would seem to be quite universal that a physician is liable to his patient for a failure to exercise requisite skill and care, and that he must possess that reasonable degree of learning, skill and experience which ordinarily is possessed by others of his profession. In short, a physician is bound to bestow such reasonable and ordinary care, skill and diligence as physicians and surgeons in the same neighborhood, in the same general line of practice, ordinarily have and exercise in like cases.

In the instant case there was no evidence that the defendant did not have and exercise that degree of skill and care ordinarily possessed and exercised by the members of his profession in good standing practicing in the locality where he resided, and that the care and attention he gave the plaintiff was not such as would have been given by other physicians in good

standing in that neighborhood. He was called to visit the plaintiff, Sept. 1, 1919. There was no evidence of a causal connection between the primary negligence of the defendant, if any there was, and the illness of the plaintiff following which caused or produced a condition said to have been found to exist in March, 1920, or the necessity for an operation performed on the plaintiff in the following October. Where the evidence is as consistent with the absence of negligence, the case should not be left with the jury.

Examining Physician Before Trial in Violet Ray Case

(Krumeich v. Sundelson (N. Y.), 225 N. Y. Supp. 667)

The City Court of New York, special term, says, on the defendant's motion to vacate a notice served for the examination of the defendant physician before trial for alleged malpractice, that the plaintiff received from another physician a prescription requiring the application to her leg, for ulcers of the leg, of violet rays, by what was described as an alpine lamp, for seven minutes, at a distance of 27 inches. This prescription she gave to the defendant, who, it was charged, placed the lamp at a distance of only 6 inches from the leg.

While it is true that the appellate division in this department has apparently established an exception to the law granting examination of defendants before trial on the issues, and that exception applies to accident cases (*Shaw* v. *Samley Realty Co.*, 201 App. Div. 433, 194 N. Y. S. 531, and cases cited), this court thinks that there is a distinction between the cases put into the exceptiontional class and this particular malpractice case. This court is not made aware that this class of cases has been included in that exception. In the instant case unusual circumstances were presented which required, at least within the limits herein indicated, the examination before trial of this defendant. It was alleged by the plaintiff's attorney, and not denied, that, although he had requested several physicians to make the necessary investigation in this case, so as to be prepared to testify, they had one and all declined. And the defendant's attorney, who was counsel for the county medical society, made no denial of the statement by the plaintiff's attorney that it is impossible to get one reputable physician to testify against another in a case of this kind. Moreover, the examination was not sought, as this court views it, to pry into the defendant's defense, but to elicit a fact from the defendant, who appeared to be the only one available who had knowledge thereof, namely, as to whether or not the defendant, in administering to the plaintiff treatment different from that prescribed for her by the physician who referred her to the defendant, inflicted on her the injuries of which she complained.

The motion is granted to the extent of eliminating from the notice, after the words "6 inches or thereabouts," the words "would be unskilful, harmful and negligent," and by eliminating, after the words "would necessarily inflict," the words "severe and painful." In all other respects the motion is denied, and the examination directed to proceed at a special term of this court.

Surgeon Not Proved Liable for Nonremoval of Sponge

(Guell v. Tenney (Mass.), 150 N. E. R. 451)

The Supreme Judicial Court of Massachusetts says that this was an action of tort against the defendant for alleged malpractice in performing an operation on the plaintiff, and in his care and treatment of her thereafter. He had suggested that she go to a certain private hospital in Boston for the operation —an appendectomy—which he there performed. She testified that there were present in the operating room the defendant, another physician, and two nurses; that she was etherized by the other physician; that she continued after the operation to be attended by the defendant, and that about ten weeks after the operation it was discovered that a sponge which had been inserted in the wound at the time of the operation had not been removed. The nurses who were present at the operation were employed by the hospital. There was no evidence to show that any of the persons present at the operation were servants or agents of the defendant, nor was there any evidence to show that the services rendered by the defendant in performing the operation were lacking in proper care and skill. It may fairly be inferred that, in the performance of an operation of this character in a hospital, nurses are commonly present to assist the operating surgeon.

It is obvious that to close the wound without removing the sponge would well warrant a finding of negligence on the part of the person whose duty it was to see that the sponge was removed. One of the nurses present at the operation testified that she did not keep count of the sponges that were put in, but counted them when they came out and were thrown on the floor. She further testified that she did not put in the sponges and had no recollection as to the number used. As there was no evidence that the nurses or other persons present and assisting were servants or employees of the defendant, he could not be held responsible for their failure to keep an accurate count of the sponges inserted and removed, and could not be charged with negligence if he did not while performing the operation also keep count of the sponges used.

There was no evidence warranting a finding that, in the exercise of that degree of care and skill required of him, he could have discovered the sponge left in the plaintiff's body before completing the operation; nor was there any evidence to show that his care and treatment of the plaintiff thereafter were unskilful or improper. No inference of negligence of the defendant could be drawn from the fact that the sponge was not removed by him before the operation was completed, in the absence of evidence that he then in the exercise of reasonable skill could have discovered it. Its presence with the resulting harm to the plaintiff was quite as likely to have been due to the fault of others as to negligence of the defendant. The doctrine of res ipsa loquitur (the thing speaks for itself) was not applicable to the facts in this case as disclosed by the record. A verdict was directed for the defendant properly. Exceptions overruled.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, St. Louis, Oct. 15-19. Dr. William P. Wherry, Medical Arts Bldg., Omaha, Sec.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Toronto, September 10-12. Dr. James E. Davis, 1825 Geddes Avenue, Ann Arbor, Mich., Secretary.

American Child Health Association, Chicago, Oct. 15-19. Dr. Philip Van Ingen, 125 East 71st Street, New York, Secretary.

American College of Physical Therapy, Chicago, October 8-13. Dr. R. W. Fouts, Medical Arts Building, Omaha, Secretary.

American College of Surgeons, Boston, October 8-12. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Electrotherapeutic Association, Boston, Sept. 10-14. Dr. Richard Kovacs, 223 East 68th Street, New York, Secretary.

American Public Health Association, Chicago, Oct. 15-19. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

American Roentgen Ray Society, Kansas City, Mo., September 24-29. Dr. John T. Murphy, 421 Michigan Street, Toledo, Ohio, Secretary.

American Social Hygiene Association, Chicago, Oct. 15-19. Dr. W. F. Snow, 370 Seventh Avenue, New York, General Director.

Association of Military Surgeons of the United States, Baltimore, October 4-6. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Sec'y.

Colorado State Medical Society, Colorado Springs, Sept. 11-13. Dr. F. B. Stephenson, Metropolitan Building, Denver, Secretary.

Delaware, Medical Society of, Rehoboth, Sept. 11-12. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Gary, September 26-28. Mr. T. A. Hendricks, Hume-Mansur Building, Indianapolis, Executive Secretary.

Kentucky State Medical Association, Richmond, Sept. 10-13. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Medical Library Association, New York, September 5-7. Miss Sue Biethan, Medical Librarian, University of Michigan, Ann Arbor, Sec'y.

Michigan State Medical Society, Detroit, September 26-28. Dr. F. C. Warnshuis, G. R. National Bank Building, Grand Rapids, Secretary.

Nevada State Medical Association, Reno, September 21-22. Dr. H. J. Brown, Box 688, Reno, Secretary.

New York and New England Association of Railway Surgeons, New York, October 12-13. Dr. Brooks W. McCuen, 423 James Street, Syracuse, New York, Secretary.

Oregon State Medical Society, Portland, September 20-22. Dr. F. D. Stricker, 410 Taylor Street, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Allentown, October 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Vermont State Medical Society, Burlington, October 11-12. Dr. William G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Danville, Oct. 16-18. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Western Branch of the American Urological Association, San Francisco-Del Monte, September 13-15. Dr. W. E. Stevens, Flood Building, San Francisco, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 11-14. Mr. J. G. Crownhart, 153 East Wells Street, Milwaukee, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Diseases of Children, Chicago

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Pediatrics of One Hundred Years Ago. J. C. Gittings, Philadelphia.—p. 1.
Metabolism of Total Base in Nephritis. G. L. Boyd, A. M. Courtney and I. F. MacLachlan, Toronto.—p. 16.
*Auricular Fibrillation in Children: Relation to Rheumatic Heart Disease. S. P. Schwartz, New York, and M. M. Weiss, Louisville, Ky.—p. 22.
*Cytolysis in Cerebrospinal Fluid in Acute Poliomyelitis. G. M. Lyon, Huntington, W. Va.—p. 40.
*Iso-Agglutinins in New-Born: Their Placental Transmission. C. H. Smith, New York.—p. 54.
*Icterus Neonatorum: Relation to Compatibility of Blood Groups Between Mother and New-Born. C. H. Smith, New York.—p. 70.
*Volume of Blood: I. Use of Thermocouple for Determining Freezing Point of Small Quantity of Fluid. D. C. Darrow, St. Louis, and T. E. Buckman, Jacksonville, Fla.—p. 78.
*Influence of Sleep on Basal Metabolism of Children. C. C. Wang and R. Kern, Chicago.—p. 83.
*Asthma in Children: IV. Hypersensitiveness and Family History. M. M. Peshkin, New York.—p. 89.
Lipoid Histiocytosis (Niemann-Pick's Disease); Case Diagnosed During Life. S. L. Berman, Chicago.—p. 102.
Congenital Heart Block: Case. H. Davis and R. M. Stecher, Cleveland.—p. 113.
Prevention of Measles. M. G. Peterman, Milwaukee.—p. 123.
Jonas and Raynalde. J. Ruhräh, Baltimore.—p. 133.

Auricular Fibrillation in Children.—Of sixty children observed during a period of five years, ten developed auricular fibrillation. Five of the children were boys and five girls. Schwartz and Weiss point out that the auricular fibrillation may be (1) paroxysmal, (2) terminal or (3) chronic in type. Mitral stenosis, acute rheumatic fever and the excessive administration of effective doses of the tincture of digitalis are all factors in the development of auricular fibrillation in children. The prognosis in children with this form of irregularity is grave. In this series of ten children, four died within one week after the onset of the arrhythmia, three died within one year, one lived twenty-two months, and one child who is still living is over 15 years of age now. Pulmonary edema in the course of auricular fibrillation is a grave complication. In one child, hemiplegia was observed as a complication during the presence of auricular fibrillation. The treatment for this arrhythmia in children consists in rest, the control of the ventricular rate with sufficient amounts of digitalis, and the elimination of fluids accumulated in the body tissues and serous cavities by the usual procedures of diuretics, diet and paracentesis.

Cerebrospinal Fluid in Acute Poliomyelitis.—Proof is given by Lyon of the advisability of making spinal fluid cell counts immediately after lumbar puncture in all cases in which there may be a possibility of poliomyelitis. A pleocytosis consisting of 50 per cent or more of multilobed cells, occurring in a clear fluid, is suggestive of acute poliomyelitic infection. When in the course of from twenty-four to thirty-six hours or so the lumbar puncture is repeated and there is a fall in the total cell count with a shifting of the differential count to a mononucleosis of 90 per cent or more, one may be certain that the condition is one of poliomyelitic infection. This cellular response is pathognomonic, as it has been observed in the spinal fluid in other conditions.

Iso-Agglutinins in New-Born.—The cord blood of seventy-one new-born infants was examined by Smith for iso-agglutinins and agglutinogens. In 49.2 per cent of these cases, the blood was equipped with its full quota of receptors and iso-agglutinins so that it could be placed in one of the four established blood groups. This percentage is increased during the first year by the later acquisition of these blood qualities. In twenty-seven of forty-one cases in which iso-agglutinins were detected in the blood from the umbilical cord, reexamination within ten days revealed either a diminution in their titer or their complete disappearance. There exists a close correspondence qualitatively between the iso-agglutinins of the cord and maternal blood, although the blood group may differ through the presence of a dissimilar agglutinogen. In fifteen cases the serum protein was determined from the cord blood and from the same infant at about ten days after birth, the iso-agglutinin titer being tested for at the same time. It was found that simple blood dilution could not be held responsible for the diminution in iso-agglutinin strength following birth. The similarity that exists between the blood of the new-born and that of the mother with respect to iso-agglutinins, as well as the tendency of the latter to diminish in titer soon after birth, suggests their passive transfer from the maternal into the fetal circulation through the placenta. This process is analogous to the passage of diphtheria antitoxin from mother to child. In two cases, iso-agglutinins definitely demonstrated in the cord blood were absent from all subsequent examinations. In these instances the iso-agglutinins lost were probably derived from the mother by placental transmission. With the later development of an agglutinogen and associated iso-agglutinin by the infant, its own blood group was established. It would seem appropriate to defer these tests for about two weeks after birth until the permanence of the iso-agglutinins is assured. These limitations apply especially to cases in which the cord blood belongs to group O.

Icterus Neonatorum.—The incidence of icterus neonatorum was also investigated by Smith to determine whether it depends on the incompatibility of blood groups between mother and infant. The results do not furnish proof that incompatibility of blood group between mother and child plays a primary rôle in the etiology of icterus neonatorum. Evidence has been presented, however, to show that interagglutination may serve as an accessory factor in the production of this condition.

Determining Freezing Point of Blood.—A rapid electrometric method for determining the freezing point of small quantities of fluid is described by Darrow and Buckman.

Effect of Sleep on Basal Metabolism.—The results obtained by Wang and Kern from observation of twelve children showed a definite reduction in the heat production while they were asleep as compared with that while they were awake.

Asthma in Children.—In a series of 285 children with asthma ranging in age from 3 months to 14 years, the antecedent family history to allergy in 278 instances was recorded by Peshkin as positive in 40 per cent of the patients of the protein sensitive and in 45 per cent of the nonprotein sensitive group, a total incidence of 42.5 per cent.

American J. Ophthalmology, Chicago

11: 515-598 (July) 1928

Regional Differentiation of Vertebrate Retina. I. C. Mann, London.—p. 515.
Preliminary Report on Experimental Investigation as to Presence of Treponema Pallidum in Syphilitic Interstitial Keratitis. C. A. Clapp, Baltimore.—p. 527.
Tuberculosis of Conjunctiva. E. Bartos and M. P. Motto, Cleveland.—p. 533.
Surgical Suggestions as to Individual Paralysis of Oblique Ocular Muscles. J. M. Banister, Omaha.—p. 537.
Milk Injections in Gonorrheal Ophthalmia. I. I. Muskat, Chicago.—p. 539.
Tapetoretinal Degeneration of Retina: Case. A. Spare, Chicago.—p. 545.
One Hundred Senile Cataract Operations. E. A. Knorr, Baltimore.—p. 551.

American J. Pathology, Boston

4: 285-393 (July) 1928

*Generalized Reticular Cell Sarcoma of Lymph Nodes Associated with Lymphatic Leukemia. M. N. Richter, New York.—p. 285.
Lipochromes: IV. Nature of Pigments in Certain Organs. C. L. Connor, Boston.—p. 293.
Mechanism of Filtration by Spleen. W. L. Robinson, Toronto.—p. 309.
*Human Mercuric Chloride Poisoning by Intravenous Injection. E. L. Harmon, Cleveland.—p. 321.
*Tissue Culture of Intracranial Tumors: Meningiomas. F. E. Kredel, Boston.—p. 337.
Tissue Changes in Experimental Black Tongue of Dogs Compared with Similar Changes in Pellagra. J. Denton, New York.—p. 341.
Blood Incubated Under Abnormal Conditions. F. Parker, Jr., and C. P. Rhoads, Boston.—p. 353.

*Two Osteoblastomas Not Connected with Bone, Histologically Identical with Osteogenic Sarcoma and Clinically Benign. C. P. Rhoads and H. Blumgart, Boston.—p. 363.
Dermoid of Cornea in Guinea-Pig. A. Brunschwig, Boston.—p. 371.
Observations on Incubated Tissues and Exudates. C. P. Rhoads and F. Parker, Jr., Boston.—p. 375.
Fibrosarcoma of Pleura: Case. H. E. MacMahon and G. K. Mallory, Boston.—p. 387.

Sarcoma Associated with Leukemia.—The case reported by Richter was one in which lesions thought to be those of an unusual tumor of the lymphatic apparatus were associated with those of lymphatic leukemia.

Mercuric Chloride Poisoning from Intravenous Injection.—In the four cases reported by Harmon, periods of intoxication ranging from six to twelve days following the intravenous injection of mercuric chloride in a dosage of more than 5 mg. per kilogram of body weight were survived. Two types of necrosis were found in the kidneys of each of the four patients. The desquamation of renal tubular epithelium was not necessarily dependent on epithelial regeneration beneath the necrotic cells. Calcification was observed only in the epithelium, the seat of coagulation necrosis, and the calcified cells were seen in situ as well as free in the lumens of the tubules. The liver injury in these patients consisted only of a mild parenchymatous degeneration in contrast to the severe hepatic changes observed after mercury poisoning by mouth. Epithelial necrosis and mucosal ulceration of the colon were noted in the four cases. The renal changes due to mercury poisoning in man are essentially the same whether the mercury is administered by mouth or by the intravenous route. Gastro-enteritis does not occur after the intravenous injection of large doses of mercury.

Tissue Culture of Intracranial Tumors.—Kredel states that successful tissue cultures with the hanging-drop technic have been made in Cushing's clinic from meningioma, metastatic carcinoma and spongioblastoma multiforme. Phagocytic cells migrated out in large numbers in meningioma cultures. The ability of these cells to ingest particulate carmine decreased progressively with the age of the cultures.

Osteoblastomas of Soft Tissues.—Two tumors of soft tissues not attached to bone are described by Rhoads and Blumgart which had a histologic structure identical with osteogenic sarcoma. These tumors have not shown recurrence after local removal. The cases lend support to the theory that the fibroblast in any part of the body may give rise to tumor bone.

American J. Public Health, New York

18: 843-970 (July) 1928

Bacillus Calmette-Guérin (B C G) Animal Experimentation and Prophylactic Immunization of Children. S. A. Petroff and A. Branch, Trudeau, N. Y.—p. 843.
Sanitation in St. Francis Dam Disaster. W. M. Dickie, Sacramento, Calif.—p. 865.
Preventorium School: Factor in Community Tuberculosis Program. W. P. Shepard and M. L. Spiers, Berkeley, Calif.—p. 871.
What Will Probably Cause Your Death? W. H. Davis, Washington, D. C.—p. 877.
Comparative Studies in Typhoid Stool Examinations. F. Berry and R. E. Daniels, Columbus, Ohio.—p. 883.
Test for Phenolic Tastes and Odors in Water After Chlorination. W. L. Stevenson, Harrisburg, Pa.—p. 897.

Am. J. Roentgenology and Rad. Therapy, New York

20: 1-100 (July) 1928

Azygos Lobe of Lung. A. J. Bendick and H. Wessler, New York.—p. 1.
Subpleural Emphysema as Causative Factor in Formation of Annular Shadows. H. P. Doub, Detroit.—p. 6.
Fracture of Alveolar Process of Superior Maxilla with Displacement of Right Central Incisor: Case. P. D. Hay, Jr., Philadelphia.—p. 13.
Roentgenologic Demonstration of Nonunion in Femoral Neck. P. M. Hickey, Ann Arbor, Mich.—p. 14.
Giant Cell Tumor of Spine: Case. A. Cotton, Baltimore.—p. 18.
Duodenal Diverticulum: Two Cases. M. Golob, New York.—p. 24.
Treatment of Pain in Carcinoma of Cervix Uteri: Stricture of Ureter. C. L. Martin, Dallas, Texas.—p. 30.
*Effect of Ovarian Irradiation with Castration Dose of Roentgen Rays on Fecundity and Offspring. M. R. Robinson, New York.—p. 36.
Routine Stereoroentgenographic Technic in Two or More Planes, for Simultaneous Viewing: Study of Mastoid Process. D. R. Bowen and P. A. Bishop, Philadelphia.—p. 58.
Roentgen-Ray Pelvimetry After Thoms Method: Simplification of Technic. A. C. Heublein, D. J. Roberts and R. T. Ogden, Hartford, Conn.—p. 64.

Effect of Ovarian Irradiation on Fecundity and Offspring.—Experiments made by Robinson tend to prove that the castration dose of roentgen rays employed for the female is also a proper dose for the male, as seen by the almost parallel results obtained in the two sexes. In none of the direct progenies of the irradiated animals, nor in the offspring of these progenies, of the first and second generations, has Robinson found (thus far) any stigmas of development. The present biologic facts, the previously advanced histopathologic conclusions, and the results of a painstaking and searching study of the records of malformed or constitutionally inferior children, born to irradiated mothers—all these cardinal data warrant the reiteration of the previously made assertion, that temporary sterilization in women of the child bearing age, when clinically indicated, is a safe and rational procedure.

Annals of Internal Medicine, Ann Arbor, Mich.

2: 1-125 (July) 1928

Cause of Various Clinical Manifestations in Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 1.
Factors in Pathogenesis of Tuberculosis: Activity. A. K. Krause, Baltimore.—p. 21.
Pulmonary Tuberculosis. G. B. Webb, Colorado Springs.—p. 56.
Interstitial Tuberculosis. R. S. Berghoff, Chicago.—p. 59.
*Response of Chronic Nephrosis to Parathyroid and Thyroid Medication. D. S. Lewis and W. de M. Scriver, Montreal.—p. 66.
Treatment of Rheumatism: Review. H. Brooks, New York.—p. 83.
*Purpuric Skin Manifestations Following Use of Merbaphen. A. M. Snell and L. G. Rowntree, Rochester, Minn.—p. 97.
*Extracerebral Causes of Epilepsy. T. H. Weisenburg, Philadelphia.—p. 104.

Thyroid Therapy of Chronic Nephrosis.—Four cases of chronic nephrosis are reported by Lewis and Scriver. The first was a pure chronic or lipoid nephrosis; the other three are examples of chronic nephrosis with glomerulonephritis. These patients were treated with parathyroid and thyroid preparations. The first showed a marked response to parathyroid extract; the second and third did not show any response. The second patient became edema-free after all treatment had been discontinued. The third patient became free of edema following the use of massive doses of desiccated thyroid gland. The fourth showed a rapid advance of the disease following thyroid medication. In no instance was the albuminuria affected by treatment, nor did the plasma proteins or albumin-globulin ratio show any noticeable change, even when marked symptomatic improvement occurred.

Purpura Caused by Merbaphen.—Snell and Rowntree report three cases in which purpura appeared following the use of merbaphen, and one other case in which the drug may have been a factor in precipitating purpura.

Extracerebral Causes of Epilepsy.—Weisenburg says that, strictly speaking, there are no extracranial causes for epilepsy. Whenever convulsions occur from so-called toxic, reflex or other causes, it is because the subject of the attacks either has a tendency to epilepsy or is epileptic.

Annals of Surgery, Philadelphia

88: 1-160 (July) 1928

Surgery of Pituitary Lesion. C. H. Frazier, Philadelphia.—p. 1.
*Postoperative Pulmonary Atelectasis. W. E. Lee, G. Tucker and L. Clerf, Philadelphia.—p. 6.
Experimental Pulmonary Atelectasis: 1. Production of Atelectasis. W. E. Lee and Others, Philadelphia.—p. 15.
Duodenal Tube as Aid in Surgical Treatment of Exophthalmic Goiter: Thirty Cases. A. S. Jackson, Madison, Wis.—p. 21.
*Value of Irradiation in Treatment of Mammary Cancer. B. J. Lee, New York.—p. 26.
*Gastrostomy in Carcinoma of Esophagus. G. P. Muller and S. Brill, Philadelphia.—p. 48.
Operative Relief of Cardiospasm Where Dilatation Has Failed. W. L. Keller, Washington, D. C.—p. 58.
*Mortality Factors in Acute Appendicitis. E. L. Eliason and L. K. Ferguson, Philadelphia.—p. 65.
*Gibson-Mikulicz Drain in Acute Appendicitis. W. M. Weeden, New York.—p. 76.
*Congenital Absence of Gallbladder. J. O. Bower, Philadelphia.—p. 80.
Lymphoid Hyperplasia of Lacrymal and Salivary Glands: Mikulicz' Disease. J. F. Smith, Wausau, Wis., and W. S. Bump, Chicago.—p. 91.
Surgical Pathology of Epididymitis. M. F. Campbell, New York.—p. 98.
Genesis, Morphology and Surgery of Prostatic Middle Lobe Hypertrophy. A. Randall, Philadelphia.—p. 112.
Closure of Prostatic Bed in Suprapubic Prostatectomy. J. B. Deaver, Philadelphia.—p. 118.
Xanthoma of Neck. C. E. Humiston and E. C. Piette, Oak Park, Ill. —p. 124.

Postoperative Pulmonary Atelectasis.—Lee, Tucker and Clerf succeeded in producing an experimental pulmonary atelectasis by using the obstructing bronchial secretion from a clinical case of postoperative massive atelectasis. This is said to be the first successful attempt of the kind.

Value of Irradiation in Treatment of Breast Cancer.—An analysis, made by Lee, of 182 primary operable and 173 primary inoperable cases of carcinoma of the breast shows that treatment by irradiation methods, alone or combined with radical surgery, gives a higher percentage of good five-year results than when radical surgery alone is employed. Preoperative irradiation adds to the percentage figures of satisfactory five-year results. High voltage treatment should be employed, an interval of three to four weeks being permitted to elapse between treatment and operation. Carried out in this way, bleeding at operation is not more active and wound healing is not delayed. Postoperative irradiation has increased the length of life after operation and has yielded a higher percentage of satisfactory five-year results than when radical surgery alone was employed. Radium is a more effective agent than the roentgen ray in dealing with this disease. Convincing evidence of the efficacy of physical agents in dealing with mammary cancer is furnished first, clinically, by marked diminution in size or complete disappearance of the tumor, and second, by the gross and microscopic changes occurring in tumor tissue adequately irradiated. Treatment of primary inoperable cancer of the breast by irradiation gives relief from pain, healing of superficial carcinomatous ulcers, improvement in the general condition and prolongation of life.

Gastrostomy in Carcinoma of Esophagus.—An analysis of twenty-one cases of gastrostomy for proved carcinoma of the esophagus is presented by Muller and Brill. The hospital mortality was 28.5 per cent. If the patients treated by esophagectomy and those who could not have been treated by other palliative methods are eliminated, the primary mortality was 11.8 per cent and the average duration of life was seven months. The average duration of life in all the patients who survived was six months, with two still living. The patients were all men with an average age of 53.8 years. Only twice did the condition of the patient warrant proceeding with esophagectomy.

Mortality Factors in Acute Appendicitis.—In the 675 cases analyzed by Eliason and Ferguson operation was performed in all at the earliest possible moment, and according to the same technic, by one surgical team. If one death on the table and one case of multiple liver abscesses (ten days' duration) diagnosed before operation are eliminated, the mortality rate is 5.5 per cent. One other death occurred in a child admitted to the hospital with a temperature of 104 F., with a right-sided pneumonia, so diagnozed by the pediatrician, and a coincident ulcerative appendicitis. Although the patient had cloudy fluid there was no perforation and the death was a pulmonary one. If this case of preoperative pneumonia is also eliminated, the mortality can fairly be said to be even lower. From 60 to 70 per cent of the cases in this series were atypical in one or more of the symptoms. This leads to difficulty of diagnosis, which in turn means delay. Delay is shown to increase the mortality enormously, chiefly because of abscess, peritonitis and intestinal obstruction. Peritonitis was the greatest factor in the mortality (twenty-two deaths) and intestinal obstruction was second (seven deaths). There was only one permanent fecal fistula, a tuberculous appendicitis and typhlitis.

Drainage in Appendectomy.—Of 1,588 cases of acute appendicitis analyzed by Weeden, 728, or 45.84 per cent, were closed without drainage. These were the cases in which there was no peritonitis or in which there was only a moderate amount of turbid fluid without odor. In the opinion of the surgeons, drainage was required in 860, or 54.16 per cent. The mortality for the whole group was seventy-eight, or 4.9 per cent. The mortality for the 728 cases treated without drainage was four, or 0.55 per cent, showing the great advantage of early operation before the infection has spread to the surrounding tissues. Of the 860 cases in which there was drainage, a folded rubber dam was used in 197. There were seven deaths in this group. Cigaret drains were used in 179 cases. There were nine deaths in this group. A rubber tube drain was used in thirty-seven cases, with three deaths. The Gibson-Mikulicz drain was used in 455 cases, with fifty-four deaths. In cases of peritonitis the Gibson-Mikulicz drain gives as low or lower mortality than any other form of drainage in the hands of the same operators. According to Weeden, there are several other distinct advantages to this type of drainage. Immediate lessening of toxicity as shown by lowered temperature and pulse has already been mentioned. Another important factor is that in the removal of this type of drainage, there is probably no pain. The old type gauze Mikulicz drain became densely adherent to surrounding structures and had to be pulled out by main force. In a majority of cases the wound is left entirely open, no sutures being introduced. This means that there is absolutely no secondary infiltration or infection of the abdominal wall and consequently no sloughing of tissues, particularly of the fascia. Formation of pocketing and of secondary abscesses is almost nonexistent. The incidence of fecal fistula was 1.2 per cent, as compared with 5 per cent reported from another clinic. Because of the protective action of the rubber dam, the adhesions formed, while firm enough for the immediate purpose of forming an abscess cavity, are not of the dense fibrous type, and rapidly disappear. In patients operated on a year or more later for hernia, practically no adhesions are found in this region. Only one patient in the series had to have reoperation for adhesions.

Congenital Absence of Gallbladder.—A case of congenital absence of the gallbladder and cystic and common ducts, together with an absence of the left lobe of the liver, is reported by Bower. Conclusive evidence of a compensatory dilatation of ducts in the absence of a gallbladder was wanting.

Archives of Dermatology and Syphilology, Chicago

18: 1-178 (July) 1928

Bonomo's Letter to Redi: Important Document in History of Scabies. J. E. Lane, New Haven, Conn.—p. 1.
Impetiago or Pyodermatitis Neonatorum. C. B. Reed, Chicago.—p. 26.
Microchemical Studies of Arsenic in Arsenical Dermatitis. E. D. Osborne, Buffalo.—p. 37.
Basal Squamous Cell Epithelioma. H. Montgomery, Rochester, Minn. —p. 50.
Chronic Paronychia. J. H. Swartz, Boston.—p. 74.
*Congenital Syphilis: 192 Cases. R. H. McBride, Iowa City.—p. 79.
Lymphatic Leukemia of Skin with Universial Exfoliating Erythroderma. W. P. Boardman, Boston.—p. 86.
Treatment of Microsporon Infection of Scalp. E. P. Lieberthal, Chicago. —p. 97.
Asymptomatic Neurosyphilis: V. Comparison of Early and Late Asymptomatic Neurosyphilis. J. E. Moore, Baltimore.—p. 99.
*Irradiation of Thymus Gland in Treatment of Psoriasis. R. C. Jamieson, Detroit.—p. 109.
Ringworm of Scalp: Treatment with Thallium Acetate. C. A. Earle, Desplaines, Ill.—p. 119.
Allergic Dermatoses. H. H. Hazen, Washington, D. C.—p. 121.
Use of Ephedrine in Controlling Reactions to Arsphenamine. J. H. Stokes and M. C. McIntyre, Philadelphia.—p. 131.
Working Formula of Ruggles Cream. E. W. Ruggles, Rochester, N. Y. —p. 136.

Treatment of Congenital Syphilis.—McBride asserts that all patients with congenital syphilis, with the exception of a portion of those with neurosyphilis, probably can be cured. Part of the patients with neurosyphilis can be cured, but when symptoms of paralysis in children have developed, we have not been able to establish a remission. Sulpharsphenamine in the cases observed has produced dermatitis more frequently than the other arsphenamine preparations. Intensive treatment at short intervals has proved more effective than treatment at long intervals. The treatment now given is, for the first day, arsphenamine and bismuth; for the third day, arsphenamine, and for the fifth day, arsphenamine and bismuth. This is a convenient method of treatment when patients are drawn from a large area, thus making residence away from home necessary for the duration of treatment. With the intensive method a cure has been effected with approximately 65 per cent of the treatment necessary when the moderate method of treatment was used. The duration of the disease is also decreased, thus lessening the chance of developing a serious syphilitic complication.

Irradiation of Thymus in Treatment of Psoriasis.—Of the fifty patients treated by Jamieson, one patient was cured, twenty-one were more or less improved, and in twenty-eight cases there was no apparent result. Jamieson believes that the method of thymus irradiation, with or without the use of thymus extract internally or by injection, has a place in the treatment of patients with psoriasis which should be recognized.

Archives of Neurology and Psychiatry, Chicago

20: 1-234 (July) 1928

*Punctures of Brain: Factors Concerned in Gliosis and in Cicatricial Contraction. W. Penfield and R. C. Buckley, New York.—p. 1.
Glia Response in Chronic Vascular Disease of Brain. J. H. Globus, New York.—p. 14.
Acute Pathologic Changes in Neuroglia and in Microglia. W. Cone, New York.—p. 34.
Cerebral Circulation: IV. Action of Hypertonic Solutions: I. H. G. Wolff and H. S. Forbes, Boston.—p. 73.
Study of Spinal Fluid Pressure in Differential Diagnosis of Diseases of Spinal Cord. B. Stookey and D. Klenke, New York.—p. 84.
Circumscribed Suppurative (Nontuberculous) Peripachymeningitis. G. B. Hassin, Chicago.—p. 110.
*Compression of Spinal Cord in Hodgkin's Disease. G. A. Blakeslee, New York.—p. 130.
Physiologic Herniations of Brain. T. W. Brockbank, Rochester, Minn.—p. 138.
Electivity of Diseases of Nervous System. F. Hiller, Chicago.—p. 145.
Metabolism in Epilepsy: IV. Bicarbonate Content of Blood. W. G. Lennox, Boston.—p. 155.
Chronic Subdural Hemorrhage: Two Cases. W. H. Holmes, Chicago.—p. 162.
*Drug Addiction. L. Kolb, Washington, D. C.—p. 171.
Isolated Paralysis of Serratus Magnus: Case. C. S. Potts, Philadelphia.—p. 184.
Pupillary Anomalies in Schizophrenia. W. C. Menninger, Topeka, Kan.—p. 186.

Study of Effect of Punctures of Brain.—Punctures of the brain were made by Penfield and Buckley with a blunt brain needle in one series and with an open cannula having a rounded edge of the same caliber in another series. When a blunt brain needle was employed, all of the injured tissue remained behind, and a closed track containing a connective tissue core firmly attached to the overlying dura resulted. The track was surrounded by a moderate gliosis in the cortical gray matter, but gliosis did not occur and there was even a decrease in astrocytes in the white matter. Occasionally, the lower end of such a track was found open. When stab wounds were made by an open cannula of equal size and a cylinder of cerebral tissue was removed, a gaping track resulted which contained little if any connective tissue and which was slightly attached to the overlying dura. The track was surrounded by a moderate gliosis in the cortical gray matter and there was no gliosis or even a decrease in astrocytes in the white matter. As a general principle, it follows that, if destroyed cerebral tissue is left in a wound in the brain, a cicatrix results containing connective tissue which contracts and causes distortion of the brain; a greater resultant gliosis also occurs. Superficial adhesions are reduced to a minimum if the injured brain tissue is removed. It is evident that, when a cannula is employed for exploratory punctures, it provides tissue for microscopic examination and in addition gives rise to less harm to the brain than that which takes place following the use of the usual exploratory brain needle. Further, the presence of injured brain tissue in a wound produces a contracting cicatrix, gliosis in the contiguous areas and cerebral distortion. On the other hand, clean removal of cerebral tissue results in little if any cicatrization, moderate gliosis in the gray matter and none in the white, slight superficial adhesion and practically no distortion of the brain. It would seem to be a basic principle that when injured cerebral tissue is not removed it produces a more serious pathologic condition than the clean removal of an equal amount of such tissue.

Compression of Spinal Cord in Hodgkin's Disease.—The disease in Blakeslee's case was of about thirteen years' duration with a complicating paraplegia developing after ten years. The patient showed definite signs of compression of the spinal cord, which receded under roentgen-ray therapy along with the general signs of Hodgkin's disease. Reports of necropsies in the literature prove that the lymphogranuloma of Hodgkin's disease can occur in the epidural space as a localized process. It seems fair to Blakeslee to assume that this case of localized compression of the spinal cord in Hodgkin's disease can be explained in this way.

Study of Drug Addiction.—Kolb reports the results of his survey of the personality and life history of a selected group of 119 medical addicts. It was undertaken in order to determine the special characteristics of this class of cases both as to susceptibility to addiction and as to the effects of narcotics in them.

Archives of Ophthalmology, New York

57: 327-445 (July) 1928

Modified Motais Operation for Blepharoptosis. D. B. Kirby, New York.—p. 327.
Ames Spectacle Device for Treatment of Cyclophoria: Successful Case. W. B. Lancaster, Boston.—p. 332.
Eye Strain in Relation to Functional Neurosis. F. W. Marlow, Syracuse, N. Y.—p. 339.
Comparative Study of Rôle of Pigment in Physiology of Vision. F. H. Adler, Philadelphia.—p. 346.
Proteins of Lens and Their Chemical Changes in Pathogenesis of Senile Cataract. I. S. Tassman, Philadelphia.—p. 361.
Glioma of Optic Nerve: Case. H. W. Wootton, New York.—p. 377.
Eye Clinic of Dr. Henry T. Holland, at Shikarpur, India. J. W. Cassell, New York.—p. 380.
Fundus as Definite Index to Arterial Disease with Analysis of 100 Cases. S. A. Agatston, New York.—p. 386.
Ocular Depigmentation Accompanying Generalized Vitiligo: Case. D. Wexler, New York.—p. 393.
Method of Dilating Lacrimal Duct by Rapid Dilatation with Sea Tangle Probes. A. L. Brown, Cincinnati.—p. 397.
Air Embolism of Retinal Vessels. H. Barkan, San Francisco.—p. 402.
Review of Literature on Treatment of Syphilitic Eye Disease. S. O. Chambers, Philadelphia.—p. 412.
Myxoma of Orbit: Case Report and Anatomic Findings. H. D. Lamb, St. Louis.—p. 425.

Archives of Surgery, Chicago

17: 1-178 (July) 1928

*Biliary Intestinal Anastomosis for Obstructive Jaundice. E. S. Judd and B. R. Parker, Rochester, Minn.—p. 1.
*Blood in Cerebrospinal Fluid: Resultant Functional and Organic Alterations in Central Nervous System: A. Experimental Data. C. Bagley, Jr., Baltimore.—p. 18.
*Id.: B. Clinical Data. C. Bagley, Jr., Baltimore.—p. 39.
*Bilateral Lobar Atelectasis. R. P. Ball, Cleveland.—p. 82.
Surgery of Lung: Care of Stump in Pneumectomy and in Lobectomy. M. Joannides, Chicago.—p. 91.
*Acute Empyema: Treatment by Continuous Tidal Irrigation and Drainage Dependent on Normal Respiratory Movements. D. Hart, Baltimore.—p. 102.
*Epithelial Neoplasms of Peripheral and Cranial Nerves. I. Cohn, New Orleans.—p. 117.
Review of Urologic Surgery. A. J. Scholl, Los Angeles, and others.—p. 161.

Biliary Intestinal Anastomosis for Obstructive Jaundice.—Judd and Parker studied 137 consecutive cases in which anastomosis of the biliary and the gastro-intestinal tracts was carried out. The cases were divided into series: carcinoma of the pancreas, thirty-four cases; carcinoma of the ducts, nine cases; carcinoma or pancreatitis, fourteen cases; pancreatitis, eleven cases; stenosis of the bile ducts, sixty-two cases; intrahepatic jaundice (biliary cirrhosis), four cases, and miscellaneous, three cases (one congenital absence of the common duct, one perforating duodenal ulcer causing obstruction of the duodenum and common duct, and one painless jaundice without demonstrable cause). There were nine cases of contraction of the stoma. Partial or complete contraction of the stoma occurred in seven of the forty-seven cases in which hepaticoduodenostomy had been performed for stricture. Return of symptoms occurred from one to six months after operation, the average being four and two-tenths months. Reconstruction of the stoma over a rubber tube was carried out in each instance. One patient was apparently cured and died from acute gastric obstruction one and a half years after operation. Five patients are still living from two to four and a half years after operation, the average being two and nine-tenths years. Two of the five have been completely relieved of their former trouble for four and a half and three years, respectively. Three are much improved but occasionally have slight attacks of pain, chills, fever and jaundice, although not severe enough to require the services of a physician. There were two other cases in which the stoma of the anastomosis contracted and produced obstruction to drainage of bile. In one, cholecystogastrostomy had been performed for obstructive jaundice due to carcinoma of the pancreas. After two months there was a return of symptoms, requiring reconstruction of the contracted stoma. In the other case cholecystoduodenostomy had been performed for obstructive jaundice caused by pancreatitis. Return of symptoms necessitated enlargement of the contracted stoma.

Blood in Cerebrospinal Fluid.—Bagley produced, experimentally, lesions simulating those occurring in human beings when a small amount of blood escapes into the subarachnoid space. Blood mixed with the cerebrospinal fluid of young and adult dogs produces neurologic disturbance varying from slight

difference in behavior to severe convulsive seizures. Though some of the animals were severely affected by small quantities of blood mixed with the cerebrospinal fluid, others have survived more than a year and are apparently normal. Following the introduction of blood into the cerebrospinal fluid, there begins a reaction of the parts of the meninges which have come in contact with the blood. The meningeal reaction tends to subside and may disappear as the blood disappears from the fluid. After several weeks the cell elements are less numerous in the meninges, but a large amount of fibrous tissue is present. Late in the course of the meningeal reaction, changes in the structure of the cortex are observed. Moderate dilatation of the ventricle not infrequently occurs following the introduction of blood into the cerebrospinal fluid of young pups. The condition may occur in adult dogs, but with less frequency.

Blood in Cerebrospinal Fluid.—Twenty-seven cases in which there was blood in the cerebrospinal fluid are presented by Bagley. In most of the cases, the blood in the fluid resulted from trauma, and the effect of the blood is shown in the acute, subacute and chronic stages. In two cases, the blood was due to congenital venous anomalies, and in one case to a tumor of the brain present at the time of birth. Five patients ranging in age from 12 to 44 years had aneurysms of the anterior cerebral arteries. In four of the patients who recovered, the exact underlying causes could not be determined, but arteriosclerosis was the most probable factor.

Bilateral Lobar Atelectasis.—A case of bilateral lobar atelectasis in a woman, aged 48, is reported by Ball, the onset occurring three days after the onset of an acute pancreatitis (fat necrosis). The observation at the necropsy that the lesser peritoneal cavity was distended with serum and the foramen of Winslow mechanically obstructed suggested the possibility that fixation of the diaphragm was the greatest factor in production of spontaneous collapse of the lower lobes of the lungs.

Treatment of Acute Empyema.—A method is described by Hart, with illustrations of the apparatus used in treating patients who have acute empyema, with or without the complication of a bronchial fistula, by continuous tidal irrigation carried on by the normal respiratory movements. The trocar thoracotomy subjects the patient to the minimal operative procedure. As the irrigation tube practically never becomes plugged, there is no obstruction to free drainage. In addition, the cavity is being continually washed out by relatively clean solution, so that there is more efficient cleansing and drainage than with the rib resection and open thoracotomy. There is not the large raw surface to become infected by the continual soiling at the time of and following operation. There is only late and negligible leakage around the tube in the thoracotomy wound, so that dissecting infections do not occur, and dressings are practically eliminated. Suction can be applied as desired, even as long as from six to eight weeks after operation, when expansion of the lung is slow after long compression. Even then there is little if any leakage of air around the tube in the thoracotomy wound. The apparatus used in the presence of a bronchial fistula permits the immediate escape of air from the drainage system without the possibility of the air reentering the chest or disturbing the siphoning action. By this method of treatment, the closing of the empyema cavity is said to be more rapid than by the early institution of rib resection and open drainage.

Epithelial Neoplasms of Nerves.—The first case reported by Cohn was one of an epithelial neoplasm of the median nerve which recurred after excision but which did not metastasize to distant organs. This case was one of an epithelial neoplasm of the radial (musculospiral) nerve which recurred and metastasized to other nerves. This case was associated with malignant neoplasms of the lung, liver, heart, brain, dura, calvarium and suprarenals. The third case was one of encapsulated tumor of the spinal accessory nerve.

Georgia Medical Association Journal, Atlanta

17: 281-332 (July) 1928

Bone Changes in Diseases of Infancy and Childhood. C. G. Grulee, Chicago.—p. 281.
Burns: Tannic Acid Method of Treatment. T. Harrold, Jr., Macon. —p. 286.
Paranasal Sinuses in Nontubercular Pulmonary Infections: Four Cases. T. S. Burgess, Atlanta.—p. 288.

Journal of Infectious Diseases, Chicago

43: 1-96 (July) 1928

Pathology of Membranes of Brain and Spinal Cord: I. Histology of Normal Dura Mater and Pia-Arachnoid. T. Rothstein, L. W. Avery and R. Richter, Chicago.—p. 1.
Bactericidal Properties of Acyl and Alkyl Derivatives of Resorcinol. B. Hampil, Baltimore.—p. 25.
Nature of Diphtheria Toxin. A. Locke and E. R. Main, Chicago.—p. 41.
Comparison of Serologic and Pullorin Tests for Bacillary White Diarrhea. L. D. Bushnell, Manhattan, Kan.—p. 60.
Influence of Carbohydrates on Bacterial Decomposition of Urea. M. Ishikawa, Chicago.—p. 67.
Behavior of Brucella Melitensis and Abortus Toward Gentian Violet. I. F. Huddleson and E. Abell, East Lansing.—p. 81.
Action of Phenol and Formol on Aerobic and Anaerobic Organisms. J. P. Scott, Manhattan, Kan.—p. 90.
Rickettsia of Rocky Mountain Spotted Fever in Brain of Infected Guinea-Pig. H. A. Reimann, Prague, Czechoslovakia.—p. 93.

Journal of Laboratory & Clin. Medicine, St. Louis

13: 905-996 (July) 1928

Mechanism and Terminology of Allergy. J. A. Kolmer, Philadelphia. —p. 905.
Potential Asthmatic. F. M. Pottenger, Monrovia, Calif.—p. 913.
*Pathology of Asthma: Nonbacterial Allergic and Bacterial Types Based on Autopsy Material. B. Steinberg and K. D. Figley, Toledo, Ohio. —p. 921.
*Allergic Bronchitis. G. L. Waldbott, Detroit.—p. 943.
Incidence and Significance of Negative Skin Tests in Pollen Asthma in Infants and Young Children. I. S. Kahn and E. M. Grothaus, San Antonio, Texas.—p. 949.
Some Causes for Failure in Specific Treatment of Allergy. W. T. Vaughan, Richmond, Va.—p. 955.
Use of Filtered Air in Diagnosis and Treatment of Allergic Conditions. M. B. Cohen, Cleveland.—p. 963.
Contribution of Air Analysis to Study of Allergy: Comparative Ragweed Records for Nine Large Cities. O. C. Durham, Indianapolis.—p. 967.
Nonspecific Diagnosis of Allergic Disease. S. M. Feinberg, Chicago. —p. 977.

Pathology of Asthma.—The clinical histories and the morbid anatomy of two cases of asthma are presented by Steinberg and Figley. One of the patients had an uncomplicated nonbacterial allergic asthma and died during a paroxysm; the other had a bacterial asthma. The pathologic changes of the nonbacterial allergic type are differentiated from those of bacterial asthma.

Allergic Bronchitis.—A certain type of bronchitis is described by Waldbott occurring in hypersensitive individuals which differs from the common infectious bronchitis. It is characterized by its sudden onset, by dry unproductive cough and by response to epinephrine and ephedrine. It is elicited by substances that are known to cause asthmatic attacks. This cough sometimes inaugurates asthmatic attacks and occasionally occurs before the subsidence of asthma and hay-fever. In several individuals with inherited hypersensitiveness it was found as the only sign of their allergic constitution. Aside from the occurrence of allergic bronchitis, a great many patients with asthma suffer from a bronchitis which clinically is distinct from true allergic bronchitis. This condition presents the features of the common cold and is termed "intercurrent bronchitis of the asthmatic." A third type of bronchitis, the postasthmatic bronchitis, is described. It follows asthma of long duration and is often associated with permanent changes in the lungs due to allergic asthma. In order to avoid ambiguity, to further better knowledge concerning etiology and for the sake of a rational therapeusis, the term asthmatic bronchitis should be restricted to the hypersensitive individual. Para-asthmatic bronchitis is suggested for the nonsensitive asthma-like cough.

Journal of Pharmacology & Exper. Therap., Baltimore

33: 259-385 (July) 1928

Action of Ergotoxin in Mammalian Heart. H. L. Otto, Vienna.—p. 285.
Seat of Emetic Action of Digitalis Bodies. N. B. Eddy and R. A. Hatcher, New York.—p. 295.
Anuran in Biotitration of Pituitary Extract. A. J. McLean, Boston.— p. 301.
Effect of External and Internal Application of Heat and Cold on Muscular Activity of Stomach of Unanesthetized Dogs. H. V. Atkinson, Iowa City.—p. 321.
Chronic Morphine Poisoning in Dogs: I. General Symptoms and Behavior During Addiction and Withdrawal. O. H. Plant and I. H. Pierce, Iowa City.—p. 329.
Id.: II. Changes in Blood Cells and Hemoglobin During Addiction and Withdrawal. I. H. Pierce and O. H. Plant, Iowa City.—p. 359.
Id.: III. Blood Sugar During Tolerance and Withdrawal. I. H. Pierce and O. H. Plant, Iowa City.—p. 371.

Journal of Preventive Medicine, Baltimore

2: 273-343 (July) 1928

Hypersensitiveness to Helminth Proteins: I. Cutaneous Tests with Proteins of Ascaris, Hookworm and Trichuris in Honduras. F. A. Coventry and W. H. Taliaferro, Chicago.—p. 273.
Prevention of Diphtheria and Scarlet Fever in Nurses. L. Hektoen and C. Johnson, Chicago.—p. 289.
Methods of Obtaining Standard of Disease Prevalence for Mid-Period. G. E. Harmon, Cleveland.—p. 293.
Acute Respiratory Infections: II. Anaerobic Flora of Nasopharynx in Health and in Colds. W. C. Noble, Jr., and D. H. Brainard, New York.—p. 313.
Infection, Immunity and Disease in Epidemiology of Diphtheria: Studies in Baltimore. W. H. Frost, Baltimore.—p. 325.

Medical Journal and Record, New York

128: 57-104 (July 18) 1928

Oral Method of Prophylactic Typhoid Immunization. A. L. Garbat, New York.—p. 57.
When Doctors Disagree Who Shall Decide? C. E. Wheeler, Los Angeles.—p. 60.
Protein Intoxication: Fifty Cases. H. J. Bartle, Philadelphia.—p. 63.
Exclusive Milk and Gelatinated Milk Diets. A. Neff, Pittsburgh.—p. 67.
Nasal Ganglion or Switchboard Test: Working Device. H. Byrd, Tampa, Fla.—p. 68.
Edema. J. W. Shuman, Los Angeles.—p. 71.
Diagnosis of Multiple Sclerosis: Changes in Cerebrospinal Fluid and Abdominal Reflex. C. S. Potts and R. L. Drake, Philadelphia.—p. 73.
Comparative Study of Epilepsy and Schizophrenia. J. P. H. Murphy, Washington, D. C.—p. 77.
Eidetic Psychology and Psychiatric Problems. S. E. Jelliffe, New York. —p. 80.
Early Tumors of Brain. E. R. Carpenter, Dallas, Texas.—p. 83.
Tryparsamide Therapy in Treatment of Neurosyphilis. T. C. C. Fong, Washington, D. C.—p. 85.
Treatment of Constipation with Normacol. M. Porges, Marienbad, Czechoslovakia.—p. 89.
Children of Renaissance and Medicine. J. Wright, Pleasantville, N. Y. —p. 90.

Missouri State M. Association Journal, St. Louis

25: 289-358 (July) 1928

Medical Education. F. G. Nifong, Columbia.—p. 289.
Fractures of Jaws. W. T. Coughlin, St. Louis.—p. 292.
*Congenital Absence of Lung. H. M. Gilkey, Kansas City.—p. 296.
Injection Treatment for Hemorrhoids. F. B. Campbell, Kansas City.—p. 297.
Leukosarcoma of Orbit: Case. C. T. Eber, St. Louis.—p. 299.
Diabetes and Pregnancy. W. L. Clapper, St. Louis.—p. 301.
*Postoperative Heat Stroke. T. M. Martin, St. Louis.—p. 305.
Emphasizing Importance of Teaching Public Mental Hygiene. M. P. Overholser, St. Joseph.—p. 307.
Mental Hygiene of Childhood. E. L. Spence, Kennett.—p. 311.
New Roentgen-Ray Fracture Device: Uses and Results. L. G. McCutchen, St. Louis.—p. 314.
Ideals of Medical Corps, U. S. Army. C. P. Summerall, Washington, D. C.—p. 318.

Congenital Absence of Lung.—The case of complete absence of one lung reported by Gilkey was diagnosed before death. All other cases recorded in the literature were diagnosed at autopsy. The patient was a fairly well developed and nourished boy, 6 months of age. He was in respiratory distress. Asthmatic râles were heard over the left side. Over the right side, breath sounds were absent. Roentgen-ray examination of the lungs showed the right chest opaque throughout, with the mediastinum and trachea entirely to the right of the median line.

Postoperative Heat Stroke.—In the series of four cases reported by Martin, the patients were in the hospital for at least twenty-four hours preceding the operation and sheltered from the direct rays of the sun. There was no history of previous heat prostration or addiction to the use of alcohol. None were acutely ill nor were they considered poor surgical risks. There occurred, however, at the time of operation and for several days preceding it a condition commonly called a heat wave. The temperature was moderately high, with a high relative humidity and the absence of any breeze. In addition to the heat wave the excessive loss of body fluids, as evidenced by the physical condition of the blood, through emesis, drainage or perspiration, was an additional factor in the production of heat stroke. The time of onset of the heat stroke is not definitely known. However, all appeared within the first thirty hours postoperatively. In three cases after the initial rise in temperature there occurred secondary rises which demanded treatment. Two of the patients died. In view of these experiences, a certain routine has been outlined for postoperative cases in warm weather. The patient is not to be surrounded by heavy blankets and hot water bottles for any great length of time postoperatively. Fluids are forced by proctoclysis, hypodermoclysis or intravenously the first twenty-four hours, especially when there is a loss of body fluids. The air in the room is kept circulating by means of an electric fan. Rectal or vaginal temperature is taken every two hours. The temperature of 102.5 F. is the arbitrary division beyond which hydrotherapy and if necessary ice packs and massage are instituted. After initial rises in temperature, the patient is observed closely for secondary rises.

New England J. Medicine, Boston

199: 167-212 (July 26) 1928

Headache. D. Drury, Boston.—p. 167.
Fracture of Surgical Neck of Humerus with Dislocation of Humeral Head, Successfully Treated by Closed Method. H. G. Lee, Boston. —p. 175.
Progress of Nutrition. F. L. Burnett, Boston.—p. 184.

Philippine Islands M. Association Journal, Manila

8: 261-306 (June) 1928

Use of Sodium Hydnocarpate and Bruschettini Vaccine in Leprosy. C. B. Lara, B. de Vera and F. Eubanas, Culion Leper Colony.—p. 261.
*Results of Treatment of Leprosy with Chaulmoogra Derivatives. C. B. Lara, Culion Leper Colony.—p. 263.
Clinical Significance of Velamentous Insertion of Cord When Coincident with Vasa Praevia. H. Acosta-Sison and V. Datoc, Manila.—p. 273.
Bacillary Dysentery. M. P. Mendoza-Guazon, Manila.—p. 277.

Treatment of Leprosy with Chaulmoogra Derivatives.—Results of treatment with the chaulmoogra derivatives in Culion Leper Colony are presented by Lara as a strong plea for a more general and correct appreciation of the value of these drugs and their rôle in the eradication of leprosy. As a result of the extensive use of these drugs during the last six years, 589 bacteriologically negative patients have been paroled or discharged, against only forty-seven cases for the previous fifteen years with less extensive and little systematized treatment. With thirty-nine bacteriologically negative patients who have died in the colony, and 257 who are still under observation, a total of 885, or approximately 16 per cent, apparent cures have been obtained in a large group, mostly of advanced, bacteriologically positive cases, in which systematic treatment has been given for from six months to six years. The methods of treatment employed in Culion and the reasons for the adoption of the iodized ethyl esters and the refined oil are discussed. The great value of local treatment employed alone, or in combination with the intramuscular injections, is especially emphasized.

Public Health Reports, Washington, D. C.

43: 1895-1956 (July 20) 1928

Benzol Poisoning as Possible Hazard in Chemical Laboratories. J. J. Bloomfield, Washington, D. C.—p. 1895.

43: 1957-2029 (July 27) 1928

Trend of Disabling Sickness Among Employees of Public Utility. D. K. Brundage, Washington, D. C.—p. 1957.

Rhode Island Medical Journal, Providence

11: 123-138 (Aug.) 1928

Progress in Phychiatry in Last Twenty-Five Years. A. H. Harrington, Providence.—p. 123.
Obstruction to Nasal Breathing. L. L. Albert, Yonkers, N. Y.—p. 130.

South Carolina M. Association Journal, Greenville

24: 109-136 (May) 1928

Physician in South Carolina History. D. L. Smith, Spartanburg.—p. 112.
Vagaries of Pediatricians. J. L. Morse, Boston.—p. 119.

24: 153-180 (July) 1928

Periodic Health Examinations. J. H. Gibbes, Columbia.—p. 157.
Lipoid Nephrosis. F. E. Zemp, Columbia.—p. 160.
Ear Hints. G. B. McAuliffe, New York.—p. 168.

Southwestern Medicine, Phoenix, Ariz.

12: 289-330 (July) 1928

Value of Laboratory to Clinician. F. G. Schaible, Tucson, Ariz.—p. 289.
Endothelioma Involving Waldeyer's Ring. J. J. McLoone and H. P. Mills, Phoenix.—p. 293.
Life, Growth and Reproduction of Bone in Their Relation to Healing of Fractures. W. L. Brown and C. P. Brown, El Paso, Texas.—p. 296.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 41-86 (July 14) 1928

Surgical Treatment of Diverticulitis. K. W. Monsarrat.—p. 41.
Ultraviolet-Ray Therapy. E. P. Cumberbatch.—p. 43.
*Congenital Esophageal Obstruction. A. L. Abel.—p. 46.
Primary Spasmodic Dysmenorrhea and Its Treatment. C. W. A. Emery.—p. 49.
*Carbohydrate Diet for Hyperthyroidism. H. Moll.—p. 51.
Jaundice Caused by Large Extravasations of Blood: Two Cases. C. E. Newman.—p. 52.
Werner's Method of Replacing Retroverted Gravid Uterus. J. N. D. Smith.—p. 53.
Malaria and Appendicitis. H. C. De Penning.—p. 53.

Congenital Esophageal Obstruction.—Abel discusses this condition in general and reports a case of complete membranous diaphragm in an infant less than 2 days old which he perforated by means of the esophagoscope. The baby made steady progress until four weeks later, when she weighed 8 pounds (3.6 Kg.). She then began to vomit forcibly through both the nostrils and the mouth. A gastric tumor was visible and a pyloric tumor palpable on the second day of these symptoms, and hypertrophic pyloric stenosis was diagnosed. Laparotomy confirmed this, and no other abnormality of the stomach or duodenum was found. Rammstedt's operation under gas and oxygen anesthesia was followed by an uninterrupted recovery.

Carbohydrate Diet for Hyperthyroidism.—Attention is drawn by Moll to the importance of careful dietetic treatment in hyperthyroidism, from the following observations: (*a*) In a study of sixty-nine cases of hyperthyroidism it was found that dyspepsia was both a common and an early symptom in hyperthyroidism; (*b*) in fractional gastric analyses made in fifty cases of exophthalmic goiter, rapid emptying of the stomach and achylia or hypochlorhydria were an almost constant feature. A diet rich in carbohydrates is advocated in the treatment of exophthalmic goiter. Mention is made of the paradoxical response of thyroid glycosuria to carbohydrates.

Indian Medical Research Memoirs, Calcutta

10: 1-146 (March) 1928

*Beriberi Columbarum. R. McCarrison.—p. 1.
Statistical Examination of Experimental Data Relating to Heart. E. R. Sundararajan.—p. 59.
*Aerobic Spore-Forming Bacilli in Rice. T. H. Gloster.—p. 89.

Beriberi Columbarum.—A condition having all the pathologic characters of human beriberi has been produced by McCarrison under experimental conditions in pigeons by means of diets of similar composition to those in use by human sufferers from the disease. This condition differs from polyneuritis columbarum in certain respects, chiefly by hypertrophy of the heart. The basal factor in the production of beriberi columbarum is insufficiency, but not complete want, of vitamin B (or of the antineuritic fraction of this vitamin). There is an optimum degree of insufficiency of vitamin B at which beriberi columbarum is most likely to arise; this optimum is provided by diets of which the vitamin B value is from 20 to 50 per cent below the minimum required for the maintenance of normal metabolism. The ultimate cause of the disease is not the negative factor of vitamin insufficiency but a positive and toxic agent produced in the course of a disordered metabolism arising out of insufficiency of vitamin B in the food. The clinical and pathologic manifestations of beriberi are due in whole or in part to this specific agent. The existence of this agent has been demonstrated on pathologic grounds and by statistical examination of the experimental data. Beriberi columbarum and beriberi hominum are preventable by the same means. Since beriberi columbarum can be produced by diets of similar composition to those in use in beriberi hominum, since the pathologic features of the two states are to all appearances the same, and since both are preventable by the same means, it is inferred that the etiology of the two conditions is the same. Experiments on animals suggest that beriberi-like maladies may be of different kinds, some due to infectious causes; some to dietetic causes, and some to a combination of both. The variety of beriberi dealt with by McCarrison is due to dietetic causes; it is believed to be the variety which is endemic in certain parts of the Madras Presidency. The results of this investigation confirm the generally accepted view that endemic or true tropical beriberi is due to insufficiency of vitamin B (or the antineuritic fraction of this vitamin) and not to toxic substances produced in rice by bacterial action. They do not preclude the possibility that other maladies included under the generic term beriberi may have a different etiology.

Aerobic Bacilli in Rice.—Gloster's investigation has not shown that rice associated with beriberi in human beings contains spore-forming bacilli in the interior of a large proportion of the grains or that a large proportion of the grains show areas of liquefaction. The distribution of the spore-forming bacilli among the rices examined does not suggest that any of them have a causal relation to human beriberi. The characters of the thirty-five bacilli which have been isolated are described in order to provide a record of some of the species prevalent in rice in India and Burma.

J. Obst. & Gynec. of Brit. Empire, Manchester

35: 233-460 (Summer) 1928

*Malignant Functions of Chorionic Epithelium. W. B. Bell.—p. 233.
*Intrinsic Nervous Mechanism of Uterus. A. M. Fleming.—p. 247.
*Period of Human Gestation. W. A. Jolly.—p. 258.
Diabetes Mellitus and Pregnancy. A. Walker.—p. 271.
Some Functional Disturbances of Uterus. P. C. Dutta.—p. 282.
Chronic Nephritis, Accidental Hemorrhage and Eclampsia. R. H. Paramore.—p. 292.
Latent Sepsis in Pregnancy Toxemia. F. Ivens.—p. 307.
*Ruptured Ovarian Pregnancy. E. W. Riches.—p. 316.
*Sarcoma Botryoides. S. W. M. Jones.—p. 320.
Interstitial Pregnancy: Case. B. Solomons.—p. 325.
*Rupture of Uterus: Three Cases. H. E. Murray.—p. 327.
*Cervical Fibroids: Three Cases. H. De Sa.—p. 331.
Tuberculosis of Body of Uterus and Cervix: Six Cases. N. Gupta.—p. 334.

Malignant Functions of Chorionic Epithelium.—Evidence is adduced by Bell to show that in certain circumstances, such, it is suggested, as interference with the oxygen supply or metabolism, cells may undergo dedifferentiation and revert to an earlier stage of development; in some cases the reversion may reach the syncytial condition of the trophoblast. This, it is believed, is the course pursued by malignant neoplasia arising in differentiated somatic tissues. Further, it has been demonstrated that in chemical constitution and function the chorionic epithelium resembles malignant tissue of somatic origin.

Intrinsic Nervous Mechanism of Uterus.—Within the wall of the uterus, nerve fibers, some ending in knobs, others ending sharply, have been observed by Fleming. No cells have been found on the course of these nerve fibers comparable in size, shape or staining reaction to the nerve cells found on the sympathetic nerve fibers elsewhere; e. g., in the cervical ganglion. A study of the action of drugs and their antagonisms indicates that in or on the uterine wall there is some arrangement for the control of tone and movement probably distributed at three levels: (*a*) a proximal, (*b*) an intermediate and (*c*) a peripheral. Apart from a slightly increased inhibitory effect produced by epinephrine after ergotoxine, no evidence of separate augmentor and inhibitory arrangements has been demonstrated.

Period of Human Gestation.—Evidence is adduced by Jolly to show that the period of human gestation is intimately related to the length of the mother's menstrual cycle in any particular case. The physiologic period of gestation extends over eleven cycles, counting from the middle day of the last menstrual flow, not ten cycles as currently assumed. This law holds good in pregnancies in which the maternal cycle is short. When the cycle is of twenty-four days and regular, the pregnancy, counting from the last menstrual flow, lasts for 264 days (i. e., eleven cycles) and the actual period of gestation, reckoning from the fourteenth day of the cycle (when ovulation and conception are assumed) is 252 days (i. e., ten and one-half cycles). In women with a twenty-six-day cycle, the respective figures are 286 days and 273 days. In those with a long cycle —twenty-seven days and upward—the law is commonly modified by a complication resulting from the age of the fetus, and birth is likely to take place when the tenth missed period following conception falls due or shortly thereafter.

Ruptured Ovarian Pregnancy.—In Riches' case the ovarian pregnancy was of about three months' duration. Microscopic

examination showed that the specimen was a true ovarian pregnancy. The outstanding clinical feature was a "shifting shoulder pain," only felt when the patient was lying down, and relieved by sitting up.

Sarcoma Botryoides.—Jones insists that the possibility of the incidence of the condition should be borne in mind in dealing with cervical polypi, and any patient from whom a doubtful polypus has been removed, particularly if it had a thick fleshy base of attachment, should be examined at short intervals. Panhysterectomy should be performed on the clinical diagnosis alone, should the characteristic multiple polypi commence to develop. Radical hysterectomy is indicated directly the condition presents itself; no time should be lost pending pathologic investigation, the results of which may prove inconclusive.

Rupture of Uterus.—In one of Murray's cases, hydrocephalus caused the rupture; in the second case, contracted pelvis due to osteomalacia was the cause, and the third case was one of spontaneous rupture.

Cervical Fibroids.—In all three cases reported by De Sa the fibroid tumor arose from the anterior wall of the cervix above the vaginal reflection, but the growth of the tumor in each case was in a different direction. The first patient had regular but painful menstruation; the second had had amenorrhea for two years, and the third had irregular and profuse menstruation. In all three cases the fallopian tubes and ovaries were diseased, the right fornix was deep and the growth was placed more to the right.

Lancet, London

2: 51-104 (July 14) 1928

Diverticula of Colon: Pathologic and Clinical Study. R. Mailer.—p. 51.
*Treatment of Diphtheria Carriers. W. C. Harvey.—p. 58.
*Cardiac Infarction Without Pain. C. F. T. East, C. W. C. Bain and F. L. Cary.—p. 60.
*Radiology and Surgery in Cancer of Breast and in "Chronic Mastitis." J. H. D. Webster.—p. 63.
Sacro-Iliac Problem. C. B. Heald.—p. 66.
*Malignant Papilloma of Left Kidney in Boy. O. W. Roberts.—p. 67.
Thoracic and Abdominal Streptothrix: Vaccine Therapy: Recovery. C. H. McIlraith, W. Turner and J. A. B. Hicks.—p. 68.
Postvaccinal Serous Meningitis: Case. F. E. S. Willis.—p. 69.

Treatment of Diphtheria Carriers.—The only satisfactory form of treatment for the nose carrier tried during the investigation reported on by Harvey was douching with a mildly alkaline nasal douche. Properly carried out, this yields excellent results. Tonsillectomy yields very satisfactory results in carriers in whom the bacilli are confined to the throat. The ear carrier, happily uncommon, is very difficult to deal with, and does not respond readily to treatment. The treatment of diphtheria carriers should consist mainly in rectifying local abnormalities and pathologic conditions responsible for the carrier state. If this is done properly the coexistent abundant flora will be diminished, and the diphtheria bacillus will probably disappear also. Diphtheria carriers should be treated as early during convalescence as is compatible with safety, the likelihood of diphtheria complications always being considered. The longer the bacilli are allowed to remain in the infected area, the more difficult does their removal become. In addition, apart from the loss of education to the children, the burdens which diphtheria carriers lay on the finances of the various public health bodies make the necessity for their early treatment and cure a very important consideration.

Cardiac Infarction Without Pain.—In seven of the eight cases reported by East et al., the first symptom was severe dyspnea but without pain. Recovery from this illness took place to a greater or lesser extent, but in no case was the patient ever the same as he was before the attack. In three the recovery was rapid and fairly complete; in the others it was only the prelude to a slowly progressive and fatal heart failure. The physical signs were such as have been described after cardiac infarction accompanied by pain. There was enlargement of the heart to the left, and a form of gallop rhythm at the apex. Five patients had frequent extrasystoles. In three instances the electrocardiogram showed that they were arising from the region of the heart in which the infarct was subsequently found. In the third case, the polygram demonstrated the presence of pulsus alternans. It appears, therefore, that cardiac infarction may occur in an apparently healthy individual, entirely unaccompanied by pain. It should be suspected as the cause of an attack characterized by the sudden onset of severe dyspnea with heart failure, when no other reason can be found.

Roentgenotherapy in Breast Cancer.—Webster's analysis of 600 cases of breast cancer, treated with roentgen rays or radium, and sixty cases of "chronic mastitis," treated with roentgen rays, suggests that both in the prevention and in the cure of cancer of the breast, radiologic measures could be employed with advantage much more extensively than they are at present. Their use is almost entirely restricted now to practically hopeless patients with inoperable primary or recurrent disease, as it was for so long in cancer of the uterus, and there is little recognition of the unique effect of radiation (1) in rendering cases on the borderline of operability operable; (2) in sterilizing the operation area so that so-called recurrences are less likely to take place; (3) in being a complete method in itself leading to cure in a proportion of early and even advanced stages of breast cancer, and (4) in its almost invariable success in the precancerous "chronic mastitis."

Malignant Papilloma of Kidney in Boy.—Roberts' patient was 11 years of age. The affected kidney was removed. Soon afterward symptoms referable to the liver appeared. The patient's condition became rapidly worse. He died six weeks after the operation. The liver filled practically the whole of the right side of the abdomen, and weighed 5 pounds and 10 ounces. It was studded throughout with secondary deposits. There was also a mass of carcinomatous tissue near the pedicle of the left kidney, while the right kidney appeared to be normal. There were, in addition, secondary deposits in the lower lobes of both lungs, in the form of projecting nodules about as large as marbles, and the bronchial and the posterior mediastinal glands were extensively involved. Microscopic examination of the secondary growths showed cells similar to the kidney tumor but with the usual tendency of carcinoma cells derived from mesothelial structures to simulate sarcomas.

South Africa M. Association Journal, Cape Town

2: 313-340 (June 23) 1928

Convulsive State in Infancy and Childhood. G. K. Cross.—p. 315.
*Ancylostomiasis: in South Africa. E. Cluver.—p. 319.
Id.: Diagnosis and Treatment. A. J. Orenstein.—p. 323.
Color Problem in South Africa: Biosociologic Survey of Its National and Survival Values. A. G. H. Hay-Michel.—p. 324.

Ancylostomiasis in South Africa.—Ancylostomiasis has long been known to occur to some extent along the Natal and Zululand coasts and abundantly farther north in Portuguese territory. Widespread anemia and low mentality among children of northern Transvaal has led to the suggestion of hookworm prevalence in these parts but Cluver reports that laboratory examination of material from European children has so far failed to confirm this supposition. Routine examinations for hookworm ova have been made among native employees in the medical research laboratory of the Rand Mines, Limited, since August, 1926. Examination of the records showed 43 per cent infestation among Portuguese East African natives, and 13.4 per cent among British South African native employees. Of the infested British South African natives, twenty-seven had not been working on the mine for more than three months (though some of them might possibly have worked on these mines in previous years). These were, therefore, probably infested elsewhere than on the mines. Of these, seven had been recruited in the Union, the remainder in Basutoland or Bechuanaland. For the purpose of the present investigation, one hundred natives recruited in British South Africa were examined previous to going underground. Of these, sixteen were found to be infested: ten recruited in the Union, five in Basutoland and one in Bechuanaland. The seventeen natives that were probably infested in the Union elsewhere than on the Gold Mines came from Zululand, Eastern Cape Province and northern Transvaal; viz., Entombeni, Engcobo, Lady Frere, Cofimvaba, Keiskamahoek, East London, Kingwilliamstown and Pietersburg. In the European cases of ancylostomiasis discovered on the Witwatersrand infestation in all appears to have occurred in the mines.

Tubercle, London

9: 461-508 (July) 1928

Potentially Tuberculous Child. G. MacDonald.—p. 461.
Id. A. L. Ormerod.—p. 467.
Id. E. Carling.—p. 471.

Annales des Maladies Vénériennes, Paris

23: 401-480 (June) 1928

Colloidal Tests of Cerebrospinal Fluid in Syphilis. Kirchberg.—p. 401.
*Purpura "a Vacuo" of Soft Palate. Barthélemy.—p. 451.

A Rare Venereal Lesion.—Barthélemy reports two cases of purpura *"a vacuo"* of the soft palate due to coitus *ab ore*. Aside from the purpuric lesions, some of which were almost as large as a dime, the inside of the mouth was perfectly normal. The general condition of the patients was excellent. According to the author, this condition has never before been described.

Journal de Radiologie et d'Électrologie, Paris

12: 257-304 (June) 1928

*Bone Involvement in Lymphogranuloma. J. Belot, L. Nahan and J. Kimpel.—p. 257.
Lymphogranuloma Involving Vertebral Column. Z. Grudzinski.—p. 269.
Multiple Chondromas of Knee Joint. I. Solomon and P. Gibert.—p. 275.
Successful Radiotherapy of Tumor of Hypophysis. J. Nordentoft.—p. 280.

Bone Involvement in Lymphogranuloma.—In only four out of thirty-three cases of lymphogranuloma studied by Belot et al. were bone lesions present. Clinically, these bone lesions usually remain silent for a long time. Occasionally, however, pain appears early. In the spinal column the early condition may resemble that of Pott's disease: pain on percussion of the spinous processes, stiffness rendering inflexion of the spinal column difficult, and gibbosity. Most frequently, however, it is the phenomena of compression of the nerve roots that disclose the presence of the lesions. The anterior roots are involved very early. In two of the patients compression of the anterior roots had produced paralysis in the region supplied by the ulnar nerve, followed by rapid amyotrophia. Although compression of the spinal cord is rare, the authors observed a case of spasmodic paraplegia with sphincter disturbances. Apparently, there is nothing characteristic about the clinical picture. Roentgenography is indispensable for establishing the diagnosis. The roentgenologic picture of this condition is not pathognomonic, but the destruction of bone is much less complete than in cancer, whereas the demarcation is more definite and the decalcification is less diffuse than in tuberculosis. Healing tuberculous osteitis, however, may give practically the same roentgenologic picture as lymphogranuloma. The roentgenologic differentiation between this condition and some forms of syphilis, fibrous osteitis, and certain tumors is impossible. The condition is rapidly improved by roentgentherapy. In fact, the radiosensitiveness of these lesions seems to be one of their dominating characteristics.

Journal d'Urologie Médicale et Chirurgicale, Paris

25: 417-512 (May) 1928

Inflammatory Strictures of Urethra. F. Legueu and B. Fey.—p. 417.
*Diagnosis of Renal Tuberculosis. R. Fronstein.—p. 434.
Urethral Diverticulae. G. S. Epstein.—p. 441.
*Prostatography. J. G. Gottlieb and F. J. Strokoff.—p. 451.
*Elimination of Phenolsulphonphthalein. P. Buzeu.—p. 458.
Bacteriology of Cystitis Following Nephrectomy for Tuberculosis. P. Baron.—p. 464.

Diagnosis of Renal Tuberculosis.—Fronstein considers that the diagnosis of renal tuberculosis is of great importance owing to the fact that at the present time early nephrectomy is the only effective method of treating the condition. Study of the literature and personal observation have led him to conclude that neither the positive nor the negative result of the examination of urine for tubercle bacilli is of great value. The presence of tubercle bacilli in the urine only gives one the right to infer that renal tuberculosis is present. In only 30 per cent of the cases studied, on the other hand, was it possible to find tubercle bacilli in the urinary sediment in cases in which the diagnosis was confirmed subsequently by microscopic examination of the kidney removed. Pyuria is of much greater diagnostic value. The author believes that one of the most important symptoms, and one that is of great diagnostic value, is albuminuria without casts and accompanied by pus in the urine. There is no direct relation between the extension of the tuberculous lesions in the kidney and the degree of alteration in the bladder. One can have an old process in the kidney with extensive destruction of the kidney tissue and minimum manifestations on the part of the bladder or, vice versa, deep bladder lesions from the beginning of the disease. The absence of pathologic changes in the mucosa of the bladder cannot, therefore, be considered as disproving the presence of a tuberculous process in the kidney. Dysuria occurs in 94 per cent of the cases and appears before the macroscopic bladder lesions. A dysuria for which no plausible explanation can be found, a dysuria with a cystoscopically intact bladder and accompanied by albuminuria and aseptic pyuria, warrants, in the author's opinion, the diagnosis of renal tuberculosis. Pyelography reveals strictures of the ureter and even permits one to detect tuberculous cavities in the kidney. Although it is customary to attach great significance to the acid reaction of the urine, Fronstein considers it of no diagnostic value, owing to two facts: (1) colon bacillus infection is also accompanied by an acid reaction, (2) a tuberculous lesion of long standing is frequently complicated by a secondary infection which changes the reaction of the urine. In all stages of the disease the characteristic triad is: (1) an aseptic pyuria or one with tubercle bacilli; (2) a true albuminuria without casts; (3) dysuria. All the other symptoms of renal tuberculosis are of only secondary importance.

Prostatography.—Before the use of air for injection into the bladder in prostatography, the condition of the prostate was studied by filling the bladder with an opaque substance and noting the position and shape of its lower wall. If the rays are directed ventrodorsally, the lower wall of the bladder is located on a level with or a little lower than the upper edge of the symphysis. When the prostate is hypertrophied, however, the lower wall of the bladder is elevated in the center, giving the bladder the shape of an inverted heart. When the bladder is filled with air, one sees not only the elevation of its lower wall but also the image of the prostate itself. In order to obtain a clearer outline of the prostate even when it does not pass above the upper edge of the symphysis, the authors tried pneumopericystography and the introduction of air into the rectum. Neither of these two methods proved worth while. The authors use a technic permitting them to obtain only the image of the part of the prostate which extends above the symphysis into the cavity of the urinary bladder. The technic is described. With their method one can determine whether or not a median lobe is present and its size; if the prostate contains calculi, they are shown. Prostatography also renders it possible to follow the effects of conservative treatment of tumors of the prostate.

Elimination of Phenolsulphonphthalein.—Buzeu performed the following experiment on each of three healthy young persons: An Einhorn tube was introduced into the stomach of the fasting subject, who was then given 300 cc. of weak tea. A short time afterward, 6 mg. of phenolsulphonphthalein was injected intravenously. Specimens of gastric juice were withdrawn every five minutes for one hour. Some specimens of duodenal juice, also, were withdrawn. At the same time, specimens of saliva were collected. The urine was obtained every hour for six hours. From the results of these experiments the author concludes: (1) phenolsulphonphthalein is not eliminated in the gastric juice or in the saliva; (2) traces of it are eliminated in the duodenal juice, appearing from fifteen to twenty minutes after intravenous injection, becoming more marked after forty-five minutes, and disappearing completely after from ninety-five to 125 minutes; (3) almost all the phenolsulphonphthalein is eliminated by the kidneys: from 63 to 75 per cent the first hour; from 8 to 10 per cent the second hour, and continuing in traces for three or four hours more, at the end of which time all the substance injected has been completely eliminated by the organism.

Marseille-Médical, Marseilles

65: 765-814 (June 15) 1928

*Physiology of Greater Omentum. M. Arnaud.—p. 765.
Interpretation of Physical Signs in Peritonitis. P. Silhol.—p. 778.
Therapy of Peritonitis. J. Giraud.—p. 791.

Physiology of Greater Omentum.—According to Arnaud, three fundamental, purely anatomic facts dominate the study of the physiology of the greater omentum: 1. The greater omentum is an organ characterized by marked variations in form, size, weight and fat content. 2. Resection is followed by its regeneration. Following partial or total resection in guinea-pigs and dogs, the author found that after as few as thirty-nine days complete regeneration had occurred, resulting in a greater omentum identical with the former one. Likewise in a patient on

whom he had performed a complete resection of the greater omentum five months previously, he found at the second laparotomy a new greater omentum which had grown more than 10 cm. beyond the scars of the previous ligatures. 3. The greater omentum has an autonomous vascularization in which the venous element predominates markedly. The functions of the greater omentum are as follows: 1. It fixes microscopic foreign bodies. India ink was injected into the peritoneal cavities of twelve guinea-pigs; examination of these animals after varying intervals of time had elapsed showed that even in those animals into which very large quantities had been injected, the parietal and the visceral peritoneum were free from black particles; the greater omentum had absorbed all the particles of carbon. 2. It surrounds large, mobile, foreign bodies. When various sterile bodies were introduced into the abdomen at a variable distance from the greater omentum it was found that the greater omentum elongated, if not as a whole at least from one of its edges, sending out one, more frequently two, extremely long fringes to seize the foreign body. 3. It possesses so-called "intelligent" mobility. A window of transparent cellophane was fixed into the abdominal wall of a guinea-pig in order that the mobility of the greater omentum might be studied. During the first fifteen minutes an intense vascularization of the surface of the greater omentum was noted; after a few seconds a large quantity of serous liquid was given off, which flooded the viscera. At the same time the greater curvature of the stomach descended and the greater omentum was seen to apply itself to a portion of the sheet of cellophane, that had been torn while being sewed to the abdominal wall. When the cellophane window was removed after forty-eight hours, it was found that in spreading out over it the greater omentum had increased to one and one half times its former size. 4. It has a secretory power. The cellophane window experiment demonstrated that the greater omentum is apparently the chief source of abundant abdominal secretion. Arnaud, like most investigators, believes that this secretion has a coagulative property; the coagulative substance is found even in the serum resulting from coagulation of the peritoneal fluid. He believes that if the greater omentum is not the only source of the peritoneal fluid, it at least gives to the fluid its coagulative property. 5. It regulates the isotonicity and maintains the sterility of the peritoneal cavity.

Paris Médical

67: 589-604 (June 30) 1928

Chemical and Pharmacodynamic Properties of Acetylcholine. M. Villaret and L. Justin-Besançon.—p. 589.
*Anomalies of Cervical Vertebrae. H. Roger, J. Reboul-Lachaux and Chabert.—p. 596.
Local Bronchopulmonary Vaccinotherapy. G. Rosenthal.—p. 601.
Sedimentation of Erythrocytes in Various Diseases. D. Hadjissarantos. —p. 602.

Occipitalization of the Atlas.—Roger et al. describe a case of fusion of the atlas with the occiput in a man, aged 24. The patient complained of painful, paroxysmal cramps in the right hand, causing flexion of the fingers, and of a diminution in the strength of this hand. The hand was held in a position of semiflexion and showed marked diminution of the power of flexion of the fingers, a slight but definite atrophy of the thenar eminence, a diminished sensitiveness on the palmar surface of the index finger and the thumb, and an exaggeration of the radial reflex. Roentgenologic examination of the cervical region showed: (1) occipitalization of the atlas, which was of normal form; (2) absence of the second intervertebral disk with complete juxtaposition of the second and third cervical vertebrae, both of which were of normal height and shape, but the spinous processes of which were fused; (3) a greater than normal length of all the spinous processes of the cervical vertebrae. Unlike the average case, the cervical segment of the vertebral column of this patient was of normal mobility and movements of the neck in all directions caused no pain. Clinically this condition is characterized by: (1) the shortness of the neck; (2) the low implantation of the hair on the neck; (3) the limitation in the movements of the head, particularly laterally. The roentgenologic findings in the typical case are: (1) reduction in the number of cervical vertebrae, which are frequently atrophied and more or less fused to each other; (2) elevation of the thorax resulting in a veritable cervical thorax; (3) the coexistence, among other anomalies, of a cervical spina bifida. In this case a cord lesion probably caused the paresis.

Presse Médicale, Paris

36: 817-832 (June 30) 1928

Regulation and Disturbances of Equilibrium. J. Froment.—p. 817.
Microbic Activation and Reactivation. F. J. Ontiveros.—p. 820.
*Contre-Coup Percussion of Cranium. I. Rasdolsky.—p. 822.

Diagnostic Value of Contre-Coup Percussion of the Cranium in Surgical Treatment of Brain Lesions.—Rasdolsky performs contre-coup percussion of the cranium with the ulnar side of the hand or with the palmar side of the wrist. The percussion should be moderately forcible and the head of the patient should be supported from the opposite side by the free hand of the examiner. The object of the procedure is to provoke (or augment if it already exists) circumscribed pain in the cranium in the region diametrically opposed to the region percussed. The pain in contre-coup percussion is due to hyperirritability of the terminal branches of the nerves in the inflamed meninges. The resulting displacement of the brain, although insignificant, brings about the contact of this part of the meninges with the internal wall of the cranium and causes more or less intense pain. The search for contre-coup pain, therefore, may enable one to disclose circumscribed foci of irritation in the meninges. Summing up the results of his experience with this method of diagnosis of cerebral conditions, the author states that the use of contre-coup percussion is of great value in the differential diagnosis of intracranial lesions. Its presence in the case of tumor (or abscess) is evidence in favor of a superficial, cortical localization; its absence indicates a deep, subcortical localization. In traumatic lesions of the cranium, even in those that appear unimportant, the presence of contre-coup pain is the expression of circumscribed meningeal irritation. If it is intense and if it continues for a long time, it justifies surgical intervention.

36: 833-848 (July 4) 1928

Intradermal Cholesterol Test in Cholelithiasis. M. Loeper, M. E. Binet and A. Lemaire.—p. 833.
*Treatment of Electrocuted Persons. J. Mouzon.—p. 834.

Treatment of Electrocuted Persons.—According to Mouzon, the first thing to do in the treatment of electrocuted persons is to loosen the clothing as quickly as possible and to attempt to reestablish the respiration and circulation, even when the patient appears to be dead. The major indication is artificial respiration, which should not be abandoned until the signs of death are certain. Numerous facts show that death from electrocution is frequently only apparent and that it is due exclusively to asphyxia caused by respiratory arrest. As many as eight hours of artificial respiration have been required to start the normal rhythm. Clinical and postmortem findings seem to indicate that artificial respiration, instituted immedately, constitutes the only rational therapy. Rubbing, slapping, the inhalation of ammonia or vinegar, the stimulation of the nasal mucosa, and the application of mustard plasters to the lower extremities are at times of value. Injections of camphor, caffeine and lobeline have their indications. Even the intracardiac injection of epinephrine would be justified in a case of cardiac arrest. But none of these therapeutic measures should be allowed to interfere, even for a few seconds, with the carrying out of Schäfer's method of artificial respiration. Venesection is hardly practicable, because it is incompatible with artificial respiration. After being resuscitated, the patient should as a rule be turned over to a surgeon for the treatment of the local lesions caused by the current. Inasmuch as these lesions are aseptic there is no indication for early resection or amputation: a simple protective or an occlusive dressing suffices. One may see the mummification extend to regions whose sensibility, motility, and even whose vascularization at first appear intact. Inversely, parts of extremities which appear gravely affected may return to normal. Even roentgenography does not enable one to recognize the extent of the bony destruction before the second or even the third week. The surgeon who operates in the first few days on the basis of the apparent extent and depth of the lesions runs the danger of sectioning too high or too low. The amputation, moreover, would offer no advantage so far as the rapidity or the quality of the cicatrix is concerned. It does not accelerate reparation and it can never be as economical as spontaneous elimination. In cases where there are symptoms of increased intracranial pressure, a lumbar puncture may constitute an heroic emergency measure.

Progrès Médical, Paris

43: 1109-1140 (July 7) 1928

Character Changes Following Malarial Treatment of General Paresis. H. Codet.—p. 1115.
*Bacteriotherapy of Leprosy: Case. Bourgeois and Tsatsaronis.—p. 1115.
Diagnosis and Treatment of Contusions of Abdomen. L. Plisson.—p. 1116.

Bacteriotherapy of Leprosy.—Bourgeois and Tsatsaronis report a successfully treated case of leprosy in a man, aged 30, with a special vaccine made from tubercle and lepra bacilli. Intramuscular injections of this vaccine were given biweekly. No reaction was noted until the eighth injection, but beginning with this injection intense local and general reactions were observed. The lepromas enlarged, softened, broke down, and discharged an abundance of serous fluid. At the same time, a sharp rise in temperature, up to 40 C., with chills, general fatigue, and coated tongue occurred. Although the injections were decreased to one a week, the lesions soon began to diminish in size and the exudation became less marked and disappeared. After twenty injections, given over a period of three months, the cicatrization of the lepromas was complete, leaving only a pigmented skin and a slight induration of the face and extremities. An examination of the nasal mucus for lepra bacilli and a Wassermann test both gave negative results. Although no treatment has been carried out for more than a year, the patient has remained completely free from all symptoms or manifestations of his former disease.

Revue d'Orthopédie, etc., Paris

15: 297-384 (July) 1928

*Klippel-Feil's Syndrome. P. Ingelrans and J. Piquet.—p. 297.
Tuberculosis of the Foot in Children. F. Pouzet.—p. 308.

Klippel-Feil's Syndrome Accompanied by Multiple Malformations.—Ingelrans and Piquet report two cases of Klippel-Feil's syndrome, one of which was accompanied by multiple malformations. In a girl, who entered the hospital to undergo treatment for traumatism of a congenitally deformed wrist, the authors were struck by the shortness and size of her neck. Her head seemed to rest almost directly on her shoulders. Posteriorly her hair line was located at the level of the seventh cervical vertebra. The head inclined slightly toward the right. Although rotation of the head was limited, particularly toward the left, flexion and extension were normal and easy. Roentgenologic examination showed fusion of the upper four cervical vertebrae. Several other congenital malformations were noted. The other case was that of a girl, aged 7, who presented asymmetry of the face and an inclination of the head towards the right: the right half of the face was underdeveloped and the nose and mouth were drawn toward the left. The head seemed implanted directly on the shoulders and posteriorly the hair line was located at about the level of the seventh cervical vertebra. Flexion of the head and rotation toward the left were normal but extension and rotation toward the right were impossible. Roentgenologic examination of the spinal column showed fusion of the upper four cervical vertebrae.

Revue Médicale de la Suisse Romande, Lausanne

48: 529-592 (June 25) 1928

Significance of Abdominal Pain. C. A. Perret.—p. 529.
Treatment of Exophthalmic Goiter. H. Kœchlin.—p. 554.
*Intravenous Injections of Radon. R. Gilbert.—p. 563.
Modern Cytology. E. Bujard.—p. 571.
Lead Poisoning at Geneva. M. Roch.—p. 578.

Intravenous Injections of Radium Emanation (Radon).—As a result of some unpleasant experiences with the intravenous injection of radium emanation, Gilbert warns against the indiscriminate use of this form of treatment of cancer. An ingenious syringe invented by the director of technic at the Swiss Radium Institute now renders it possible to utilize, on the spot, the blood from the punctured vein as a vehicle for the emanation. This fact, combined with the ease with which any physician can procure the syringes charged with radon, is rendering this form of treatment very popular among general practitioners. The author, however, believes that its use should be limited to the treatment of patients in whom surgery and local radiotherapy are no longer possible.

Schweizerische medizinische Wochenschrift, Basel

58: 621-644 (June 23) 1928. Partial Index

Operation for Spastic Adduction Contracture of Thumb (Fascial Sling). C. Henschen.—p. 621.
*Fifty Years' Statistics of Nephritis. E. Jessen.—p. 625.
Traumatic Lumbago as Erroneous Diagnosis. K. Waegner.—p. 631.
Case of Actinomycosis of Internal Organs. E. Geymüller.—p. 635.
Six Hundred Appendectomies. G. Gander.—p. 637.

Fifty Years' Statistics of Nephritis.—Jessen analyzes and compares the statistics of death from nephritis of Basel, Bremen, Munich and Oslo and of fifty-eight American cities, so far as they are available, for a period of fifty years. A slight increase is general, except in America, where a considerable decrease is shown. The figures for America, however, are still far higher than for the European cities studied. The Basel figures are closely analyzed as to age and sex. The figures for acute nephritis in infancy are high. For all ages there is a decided predominance of the male sex in acute nephritis. Making the necessary correction for the preponderance of women in the population, a slight predominance of the male sex is found in chronic nephritis and of the female sex in purulent nephritis.

58: 645-668 (June 30) 1928. Partial Index

Spondylitis Traumatica: Treatment. H. Iselin.—p. 645.
*Proposed Surgical Treatment of Ascites from Portal Vein Stasis. F. Pedotti.—p. 652.
Cancer Formation and Regeneration. M. Askanazy.—p. 653.
Treatment of Pernicious Anemia by Liver Diet. W. Eisner.—p. 655.
Combined Surgery and Radiotherapy in Bone Cancer. A. Jentzer.—p. 659.

Proposed Surgical Treatment of Ascites from Portal Vein Stasis.—To conduct the fluid away, Pedotti uses the parietal peritoneum, which he draws obliquely through the musculature of the abdominal wall and a slit in the fascia into the subcutis. Here the peritoneal tip is fastened by sutures to the fascia. The method is shown in diagrams.

Archivio Italiano di Chirurgia, Bologna

21: 213-312 (April) 1928

Experimental Surgery of Portal Vein. V. Ghiron and V. Lozzi.—p. 213.
*Osteomyelitis from Micrococcus Melitensis. G. Segre.—p. 235.
Free Transplants of Skin in Plastic Surgery of Face and Neck. G. Sanvenero-Rosselli.—p. 245.
Thyroid Syndromes and Surgical Treatment in Relation to Basal Metabolism. G. C. Peracchia.—p. 266.
Applications of Spiroscopy to Surgery. E. Borra.—p. 277.
*Histologic Observations and Experimental Findings in Hydrops of Gallbladder. G. Galli and A. Vecchi.—p. 298.
Renal Enervation. G. Nisio.—p. 309.

Osteomyelitis from Micrococcus Melitensis.—Segre studied the pathogenic action of *Micrococcus melitensis* inoculated into the bone tissue of guinea-pigs and rabbits. Of four guinea-pigs inoculated, three developed an inflammatory process of a suppurative nature, localized at the site of the inoculation. From two of these, a pure culture of *M. melitensis* was obtained. One case was doubtful; one was negative. The animals that were receptive to the organism inoculated into the bone showed little power of defense and succumbed, not as soon as the infective process, characterized by a tendency to necrosis of the bone tissue and by a dense, creamy pus, was established, but before the infection had become generalized throughout the blood vessels. Of the six rabbits inoculated, four recovered. In two there developed a focus of osteomyelitis with the presence in both of *M. melitensis*, in one case in pure culture, and, in the other, associated with streptococci. Radiography demonstrated the presence of a focus of osteomyelitis. His experiments confirm the clinical observations on the possibility of osteoperiosteal localization of *M. melitensis*.

Experimental Hydrops of the Gallbladder.—Galli and Vecchi carried out extensive experiments on six groups of dogs, in one group ligating the cystic duct, in a second, ligating the cystic duct and placing human gallstones in the gallbladder, in a third group placing the gallstones in the gallbladder without ligating the cystic duct, in a fourth group ligating the cystic duct and injecting into the gallbladder from 2 to 3 cc. of a suspension of *Bacterium typhosum* in 5 cc. of physiologic sodium chloride solution. In a fifth group, gallstones and typhoid bacilli were introduced without ligating the cystic duct. In the sixth group, gallstones and typhoid bacilli were introduced and

the cystic duct was ligated. From their researches, the authors conclude that in the development of hydrops of the gallbladder in man, occlusion of the cystic duct by gallstones is the most important factor.

Pediatria, Naples

36: 563-618 (June 1) 1928

Ultramicroscopic Study on Luminous Particles of Milk (So-Called Lattoconi) Characterized by Lively Brownian Movements. G. C. Bentivoglio.—p. 563.
Behavior of Blood Platelets in Tuberculous Children. A. Emmanuele. —p. 588.
Primary Diphtheria of Prepuce. B. Vasile.—p. 595.
*Acute Suppurative Thyroiditis in Infant. A. Baratta.—p. 602.

Acute Suppurative Thyroiditis in Infant. — Baratta reports what, as far as he knows, is the only case of acute thyroiditis occurring in early infancy. On admission to the clinic, the face of the girl, aged 2 months, showed the effects of suffering. The skeletal development was normal. The state of nutrition was good. The skin and the visible mucosae were pink. The temperature was 39.7 C., pulse 140, respiration 45, weight 4.7 Kg. At the first look, the posture of the child attracted attention. The neck was markedly extended. Passive movements provoked pain, but the child could readily move its head. The eyes were congested, the lips were cyanotic, and the face wore an anxious look. The respiration was rapid, and during inspiration, which was prolonged, a sound similar to a laryngeal stridor was perceptible. In the anterior and medial part of the neck a swelling, with its longer axis in a transverse direction, was noted. Higher up, at the level of the hyoid bone, the swelling stopped suddenly, and a furrow separated it distinctly from the suprahyoid region. Laterally, it continued until it merged with the sternocleidomastoid muscle. Below it left free the jugular depression and allowed the dyspnea to be distinctly visible. Palpation of the swelling elicited pain and gave a frank sensation of fluctuation, especially in the center. The Wassermann test was negative, also the skin test with tuberculin. A puncture was made, as the child was threatened with suffocation, and about 25 cc. of pus was removed. Immediately the child began to breathe better and, after a short time, fell asleep, so that it was decided to postpone the contemplated operation. The exudate was found to contain staphylococcus and streptococcus. The rapid evolution, the lack of preceding swellings and the bacteriologic findings in the exudate showed that it was an acute, suppurative process. After the aspiration of pus, the child continued to take the breast regularly and to breathe freely. The temperature fell toward evening to 38.5 C. Locally, compresses with a solution of boric and salicylic acids were applied. The day following, the dyspnea began again; the swelling, which, after the extraction of pus the day before had almost disappeared, manifested itself anew. A second puncture (20 cc. of pus), was performed. The dyspnea disappeared, and the swelling was reduced. The compresses were continued. The child improved steadily, and was discharged, as cured, on the thirteenth day.

Policlinico, Rome

35: 285-340 (June 1) 1928. Medical Section

Glycemia and Acidosis. P. Albertoni.—p. 285.
*Threshold of Sugar Elimination in Diabetes. U. Speranza.—p. 288.
*Behavior of Sugar in Blood and in Abdominal Effusions Following Ingestion of Dextrose. B. Bisbini.—p. 312.
Speech Changes Due to Lesions of the Right Brain. G. Milani.—p. 321.

Threshold of Sugar Elimination in Diabetes.—The results obtained by Speranza in his researches confirm those obtained by Chabanier, Lebert and Lobo-Onell. They lead to the following conclusions: (1) The threshold of sugar elimination by the kidney undergoes important variations in the same individual, under the influence of diverse causes. (2) The variations in the threshold value are, in a general way, in correspondence with the variations in glycemia, but they do not run exactly parallel. (3) Of the various factors capable of affecting the relations between the threshold and the glycemia values, carbohydrate restriction and insulin medication act in a diametrically opposite manner to carbohydrate administration and epinephrine medication. Whereas, the first tend to elevate the point of agreement between the two values, the second factors lead to a greater divergence in the two values, owing to the manifestly depressing influence that they exert on the threshold value.

Behavior of Sugar in Blood and in Abdominal Effusions Following Ingestion of Dextrose.—As a result of his experiments, Bisbini found that: (1) The percentage of sugar will serve for the differential diagnosis of exudates and transudates. (2) In the exudates sugar is always present, but in much less quantity when the inflammatory symptoms are more marked. The sugar content is low in purulent fluids. (3) In transudates there is always a high sugar content—about the same as that of the blood, or even higher. (4) On having the patient ingest, fasting, 50 Gm. of dextrose, fluctuations occur in the sugar content of the fluid and such fluctuations are minimal or nearly so, in the exudate. They are much greater, however, in ascitic fluids. (5) The reason for the low sugar content in inflammatory effusions is still uncertain. One may suspect, on the one hand, the intervention of leukocytes, or, on the other hand, an alteration of the osmotic functioning of the serosa, due to its inflammatory condition.

Riforma Medica, Naples

44: 613-645 (May 21) 1928

*Inflammatory Lesions of Subepicardial Plexus of Right Auricle in Pathogenesis of Disturbance of Cardiac Rhythm. L. Condorelli.—p. 613.
Value of Graft of Interstitial Glands and of Causal Treatment in Genitodystrophy. E. Mariotti.—p. 616.
Albuminoid Antibodies. S. Livierato and M. Vagliano.—p. 621.
*New Treatment for Malignant Tumors. R. Minervini.—p. 622.
Alleged Congestive Action of Iron in Pulmonary Tuberculosis. I. Sacchetto.—p. 625.

Inflammatory Lesions of Subepicardial Plexus of Right Auricle in Pathogenesis of Disturbance of Cardiac Rhythm.—A clinical case is reported by Condorelli, in which the disturbance of cardiac rhythm consisted of an auricular fibrillation with a nodal rhythm (frequency 97, which is very unusual). There were extensive highly inflammatory lesions of the subepicardial nerve plexus of the right auricle with no other lesions to speak of elsewhere in the heart tissue.

New Treatment for Malignant Tumors. — Minervini found that antimony salts and especially antimony and potassium tartrate exert a beneficial effect, sometimes have a decidedly healing action, in some cases of malignant tumor. He discovered also that emetine has a beneficial effect in some cases, particularly in adenocarcinoma. He has frequently observed that cases that do not respond to one of the remedies respond to the other, and that extract of ipecac root acts more promptly than emetine. He combined the salts of antimony and potassium with extract of ipecac, and in a number of cases a complete arrest of all pathologic manifestations has been obtained after two or three months of treatment.

Archivos Brasileiros de Medicina, Rio de Janeiro

18: 165-378 (March) 1928

*Prostatic Abscess: Ten Cases. A. Valerio.—p. 167.
Fatal Poisoning with Calomel. H. Póvoa.—p. 172.
*Sleep and Selection of Ideas. M. Gomes.—p. 183.

Ten Cases of Prostatic Abscess.—For the diagnosis of prostatic abscess the persistence of acute phenomena and the rapid pulse are sufficient. There are in addition general disturbances like malaise, chills and fever. At times there is a hard convex mass, of the contour of the prostate. This indicates that the collection of pus is deep seated. It may come to the surface of the perineum. It may infiltrate in front and below, separating the posterior aspect of the prostate, and even reach the membranous portion of the urethra. Once the diagnosis of prostatic abscess is established, evacuation of the pus by means of a perineal incision, such as is practiced in the first stage of the prerectal operation or of prostatectomy, is the proper procedure, unless there are contraindications. By this method Valerio obtained a cure in all his cases.

Dreams and Selection of Ideas.—Psychic attraction is the force which produces the movements adapted to certain purposes in the life of the animal and of man. Psychic attraction is the combination of movements or variation of movements for certain purposes. Orientation is controlled previous to and during movement with or without detention of other movements, contrary or secondary. Transformation or deformation in dreams is produced by four ways: ligation, incorporation, reduction, and complete transmutation.

Ars Medica, Barcelona

4: 81-112 (March) 1928

Miliary Tuberculosis. D. Ferrer.—p. 81.
*Surgical Treatment of Uterine Myoma. F. Terrades.—p. 88.
Roentgen-Ray Diagnosis of Pott's Disease. L. Carrasco Fomiguera.—p. 92.
Spondylotherapy. J. Cambiés.—p. 96.

Surgical Treatment of Uterine Myoma.—Terrades studied 130 patients operated on by the abdominal route, and concludes that all uterine myomas which may be dangerous to the woman, should be treated surgically for the following reasons: because the danger from operation is not greater than that of radiotherapy, in the simple cases; because it permits the discovery of hidden complications; because in some cases it facilitates the removal of the tumor without the uterus; because in other cases it produces radical cure, removing the risk of malignant degeneration.

Revista Española de Medicina y Cirugía, Barcelona

11: 259-326 (May) 1928

*Results of Prophylaxis in Diphtheria. V. Jordana and S. M. J. de Lara.—p. 261.
Liberty, Equality and Fraternity in Psychiatry. P. Farreras.—p. 265.
Plastic Surgery in Wrinkles and Double Chin. Deselaers.—p. 270.
Operative Technic of Animal Grafts in Woman. Dartigues.—p. 271.
Ocular Signs in Cerebral Syphilis, Tabes and Paresis. E. Fuchs.—p. 275.
Symptomatic Signs in Genital Life of Women. P. Abadal.—p. 279.

Prophylaxis of Diphtheria.—Jordana and Lara made 600 Schick tests, with only eight pseudoreactions. In 52 per cent of the children immunized the reaction changed with the first injection; in 99 per cent with the second. The only case in which it was necessary to use a third injection was in the group of children from 1 to 3 years old, the age of greatest susceptibility.

Semana Médica, Buenos Aires

35: 813-876 (April 5) 1928. Partial Index

Therapeutic Applications of Cholesterol Esters. J. R. Goyena and N. A. Diaz.—p. 813.
*Is Neon Light Injurious to Eye? P. Satanowsky.—p. 820.
*Gastroscopy and Gastrophotography. O. P. Curti.—p. 832.
Snake Bites. H. López Alcoba and G. Fonseca.—p. 871.

Is Neon Light Harmful to the Eye?—Satanowsky concludes that light from pure neon, apart from its glare, has not caused appreciable change in the eyes of persons exposed to it for several hours every day. The ultraviolet rays given off by neon are absorbed by the glass enclosing the gas.

Gastroscopy and Gastrophotography.—Curti describes his gastrophotographoscope, and asserts that gastroscopy and gastrophotography are valuable aids in medical diagnosis, and can be applied in the great majority of cases. These methods do not replace gastric examination, but aid and complete it.

35: 937-1000 (April 19) 1928. Partial Index

*Potential Energy During Labor. J. A. Beruti.—p. 937.
*One Thousand and Eight Cases of Peripheral Facial Paralysis. A. M. Marque.—p. 946.
Dietetic Treatment of Renal Stones. T. Martini and C. Cardini.—p. 949.
Torsion of Testis. F. E. Grimaldi.—p. 955.
Determination of Blood Coagulation. D. Barilari and D. Fossati.—p. 963.
Vitamines in Medicine. C. Pillado Matheu.—p. 977.
Ovarian Follicular Hormone. O. Prestini.—p. 987.
Cholecystography. Moissonnier.—p. 993.
Teaching of Abnormal Children. C. Juarros and M. Soriano.—p. 995.

Potential Energy During Labor: New Conceptions of Obstetric Mechanics.—The *fetus mobile* is exposed during labor to the action of its own weight and the motor action of the maternal abdominal and uterine muscles. On the other hand there is the resistance of the birth canal and the resistance of the fetus itself. This fight between force and resistance gives rise to two forms of active fetal reaction: one, potential energy, which is an elastic reaction, and the other, the contraction of the mobile fetus, which is a muscular reaction. The idea of the passiveness of the *fetus mobile* should be abandoned.

One Thousand and Eight Cases of Peripheral Facial Paralysis.—Marque observed two clinical cases in which the presence of a facial paralysis appeared before the primary syphilitic lesion and several years after the lesion, respectively. In his statistics he has six cases in which facial paralysis developed in the secondary stage of acquired syphilis in spite of intensive treatment. With reference to the sex, he observed 568 cases in males and 440 in females, which gives 44 per cent for the latter and 50 per cent for the former.

Archiv für Psychiatrie und Nervenkrankheiten, Berlin

84: 1-180 (May 25) 1928

Nitrous Oxide in Psychiatry and Neurology. J. Zádor.—p. 1.
*Diagnosis of Neurosyphilis Based on Examination of Blood and Cerebrospinal Fluid. A. Friedmann.—p. 73.
Past-Pointing as Cerebellar Symptom. Klestadt and Rotter.—p. 93.
*Siliquoid Reaction in Syphilis of Central Nervous System. E. Blum.—p. 116.
Pathologic Dissociation in True Narcolepsy and in Delayed Psychomotor Awaking. C. Rosenthal.—p. 120.

Diagnosis of Neurosyphilis Based on Examination of Blood and Cerebrospinal Fluid.—Study of a large number of cases has convinced Friedmann that there is at present no absolutely reliable specific test for neurosyphilis. One can make a definite diagnosis of syphilis of the nervous system only when the Wassermann reaction in the blood and in the cerebrospinal fluid is positive, when there is a corresponding positive globulin reaction, and when the gold-sol test shows the typical curve. For specific meningitis and metasyphilis, the Takata-Ara colloid reaction gives evidence of reliability and deserves further consideration.

Value of Blumenthal and Schirakawa's Siliquoid Reaction in Syphilis of the Central Nervous System.—The colloidal siliquoid (silica solution) reaction of Blumenthal and Schirakawa was tested by Blum in 250 cases of neurosyphilis, and no reason was found to doubt its specificity. Its value was further confirmed by negative results in tests made in 300 cases of sclerosis, epilepsy and other diseases in which syphilis of the brain could almost certainly be excluded. Considering the ease with which it may be carried out, the author strongly recommends the siliquoid reaction.

Beiträge zur Klinik der Tuberkulose, Berlin

69: 133-314 (May 22) 1928

Pathogenesis of Pulmonary Tuberculosis. O. Pischinger.—p. 133.
*Skin Inoculation with Virulent Tubercle Bacilli. A. Moeller.—p. 141.
New Points of View on Beginning of Pulmonary Tuberculosis. J. Holló.—p. 148.
Value of Ziehl-Neelsen and Much Methods of Staining Tubercle Bacilli. K. Hagedorn.—p. 166.
Comment on Above. L. Lange.—p. 179.
Culture of B C G, etc., in Cornea. O. Kirchner.—p. 181.
*First Stage of Tuberculosis. F. Jessen.—p. 188.
Conditions in Which It Is Possible to Diagnose the Severity of Pulmonary Tuberculosis by Roentgen Ray. F. M. Groedel and R. Wachter.—p. 192.
Epituberculous Infiltration in Adults. T. Sonnenfeld.—p. 209.
Forms of Bronchogenic Tuberculosis Beginning in Lower Lobe. R. Pohl.—p. 229.
Thoracoscopy and Cauterization. G. Maurer.—p. 246.
Tuberculin Reaction in Testis of Guinea-Pig. K. G. Ledermann.—p. 265.
Vasomotor Excitability and Biologic Skin Reaction. A. Schuberth.—p. 273.
Pathologic Anatomy of Pulmonary Tuberculosis at Puberty. W. H. Stefko.—p. 278.
Selter's Inoculation Against Tuberculosis: Question of Priority. W. Böhme.—p. 299.
Reply. H. Selter.—p. 307.

Skin Inoculation with Virulent Tubercle Bacilli.—Moeller prefers intracutaneous to subcutaneous inoculation on account of its greater safety. In the former the entrance of the bacilli into the blood stream takes place slowly and is accompanied by antibody formation. The infection is under visual control. He points out that the formation of immune bodies is a reflex process (R. Pfeiffer) and that contact between the antigen and the antibody-producing cells or the circulating blood is not necessary, and hence, to uphold the effectiveness of intracutaneous immunization, it is not even necessary to allow the skin an antibody-producing power.

First Stage of Tuberculosis.—The absence of giant cells and tubercles does not, Jessen points out, speak against the presence of tuberculosis. Tuberculosis begins like any other inflammation. It may heal with induration, as does any other inflammation. Between primary inflammation and healing lies the period in which those changes that are peculiar to tuberculosis take place. Photomicrographs of the lung and of the liver of a guinea-pig killed ten days after infection with tubercle bacilli are reproduced. In the lung inflammatory infiltration is present without giant cells or necrosis; tubercle bacilli can

be demonstrated. In the liver there is necrosis, but there are no tubercles. A third photomicrograph shows the lung of a man with severe tuberculosis. In man, Jessen points out, tuberculosis runs a much slower course than in massive intravenous infection in the animal. In this specimen the first two stages, as described above, are seen and, in addition, tubercles with giant cells and advanced necrosis in confluent foci.

Deutsche medizinische Wochenschrift, Berlin

54: 1027-1066 (June 22) 1928. Partial Index

Malaria Treatment of Early Syphilis. K. Zieler.—p. 1027.
*Constitutional Factor in Low Mortality from General Paralysis Among Actors. J. Heller.—p. 1029.
Agglutination Reaction in Serum and Cerebrospinal Fluid. R. Müller. —p. 1032.
Differentiating Bacteria with Bacteriophages. C. Sonnenschein.—p. 1034.
*Methenamine Treatment of Suppurative Meningitis; Injurious Effects on Bladder and Kidneys. W. Schreyer.—p. 1036.
*Encephalitis and Amaurosis After Burn. F. Kruse.—p. 1039.
"Ovarian Hormone Therapy." F. Lange.—p. 1041.
Mesenteric Pyemia After Appendicitis. H. Hoffmann.—p. 1043.
*Experimental Production of Bladder Stones by Avitaminosis. S. Perlmann and W. Weber.—p. 1045.
Experimental Production of Infantile Intoxication? E. Kramár.—p. 1046.

Constitutional Factor in Low Mortality from General Paralysis Among Actors.—In examining the causes of death in 1,429 prominent actors born between 1785 and 1870, Heller found a surprisingly low general paralysis rate (1.5 per cent), as compared with other professional groups. He suggests that the physical and mental constitution of actors and particularly the opportunity for full and regular emotional expression provided in their work are factors in their high resistance to paralysis.

Methenamine Treatment of Suppurative Meningitis; Injurious Effects on Bladder and Kidneys.—In Schreyer's experience, methenamine in large doses produces transient hemorrhagic cystitis in about a quarter of the cases; in a few, irritation of the kidneys, and occasionally a true glomerulonephritis. The medication should be stopped on the appearance of albuminuria, cylindruria or hematuria, except in grave conditions, such as suppurative meningitis. In this disease he has seen good results from intravenous administration of the drug in large doses.

Encephalitis and Amaurosis After Burn.—A child, aged 14 months, received an extensive second degree burn from hot coffee. The following day severe cerebral symptoms with bilateral amaurosis developed. Encephalographs made on three separate occasions agreed with a diagnosis of severe congestion of the brain with "encephalitic" changes. The amaurosis cleared up, but postencephalitic disturbances remain.

Experimental Production of Bladder Stones by Avitaminosis.—In three out of fifteen rats fed for five months on a diet entirely lacking in vitamin A, calculi, consisting mainly of phosphates, were found in the bladder.

Klinische Wochenschrift, Berlin

7: 1161-1208 (June 17) 1928. Partial Index

Relations of Internal Secretions to Psychic Disturbances. A. Oswald. —p. 1161.
Bartonella Anemia in Rats. V. Schilling and A. San Martin.—p. 1167.
*New Type of Streptococcus in Pharynx. W. Löwenberg.—p. 1170.
*Blood Reaction of Carcinoma Patients and Its Connection with Renal Function. S. Weiss, S. Sümegi and L. von Udvardy.—p. 1178.
Roentgenologic Diagnosis of Pancreatic Stones. G. Wolf and A. Tietze. —p. 1182.
*Glycogen, Dextrose and Lactic Acid Contents of Benign and Malignant Tumors. F. Bernhard.—p. 1184.
Caffeine in Human Milk After Ingestion of Coffee. E. Schilf and R. Wohinz.—p. 1186.
Fat Metabolism After Splenectomy. S. Leites.—p. 1186.
Atypical Myeloid Leukemia. G. D. Koehler.—p. 1186.

New Type of Streptococcus in Pharynx.—In twenty-three out of fifty cultures (forty-four of material from the throats of healthy persons and six of material from the interior of tonsils removed because of chronic infection), Löwenberg found a streptococcus that bore a certain resemblance to the enterococcus, but differed from this organism and from *Streptococcus viridans* in cultural and serologic characteristics.

Blood Reaction of Carcinoma Patients and Its Connection with Renal Function.—Weiss et al. determined the p_H of the blood in twenty-nine patients with carcinoma. It was found to lie around the upper limit of physiologic alkalosis. In 50 per cent it went beyond this limit. In some of the patients renal insufficiency and in nearly all more or less disturbance in water metabolism could be demonstrated. The authors believe, however, that in most cases other factors are concerned in the disturbance of the acid-base equilibrium, such as toxins, which influence the activity of the cells of the respiratory center, increased absorption of alkalis or excretion of acids by the gastro-intestinal canal, and disturbance in hepatic function.

Glycogen, Dextrose and Lactic Acid Contents of Benign and Malignant Tumors.—Bernhard found (1) that the sugar concentration in malignant and benign tumors is the same; (2) that malignant tumors contain ten times as much glycogen as benign tumors; (3) that breast carcinomas do not differ from other malignant tumors in respect to containing glycogen; (4) that the lactic acid content of malignant tumors is greater than that of benign tumors; (5) that the change in the lactic acid content of the blood is not of value for the diagnosis of carcinoma, and (6) that it cannot yet be stated whether the determination of the glycogen content of malignant tumors would be of diagnostic or prognostic value to the surgeon.

Medizinische Klinik, Berlin

24: 957-996 (June 22) 1928. Partial Index

*Treatment of Tuberculosis of Epididymis. G. Wolfsohn.—p. 957.
Clinical Course of Pulmonary Tuberculosis. E. Gabe.—p. 959.
Obstetrics in the Home and in the Clinic. M. Hirsch.—p. 962.
Cure of Gonococcal Infection of Uterus and Fallopian Tubes. A. Loeser. —p. 965.
Malignant Tumors of Base of Skull. E. Suchanek and I. Sommer.—p. 967. C'en.
Feer's Disease: Case. M. Brückner.—p. 970.
Ruptured Corpus Luteum Cysts. J. Grünstein.—p. 972.
Inversio Uteri Postpartum. R. Pollák.—p. 974.
Climacteric Disturbances. A. Scheuer.—p. 977.

Conservative Treatment of Tuberculosis of Epididymis.—After trying various forms of conservative treatment, Wolfsohn now uses a combination of the following methods: (1) passive hyperemia, (2) roentgen-ray treatment, (3) injection of irritants or disinfectants into the diseased area. The first two methods are of some value, but it is on the third method that the author relies most. For the last six years he has used tuberculin (Rosenbach) systematically and believes that there is nothing better for the local treatment of circumscribed, accessible tuberculosis. He uses the following technic: evacuation of hydrocele fluid and aseptic puncture of any demonstrable cold abscesses. One tenth of 1 cc. of tuberculin (Rosenbach), to which about 0.5 cc. of procaine hydrochloride solution (1 per cent) is added to counteract the pain, is then injected. Care must be taken to inject the mixture directly into the diseased area. The injection is repeated after an interval with from 0.1 to 0.2 cc. of tuberculin. The reactions following these injections are relatively severe. During the treatment a transient fistula always develops. It is best to inform the patient in advance of this fact; otherwise he will consider it an error in technic. The fistula is of little significance and closes in a short time. With this treatment the internal secretion of the testicle is not at all diminished.

Medizinische Welt, Berlin

2: 937-972 (June 23) 1928. Partial Index

*Syphilitic Thrombosis of Portal Vein. H. Beitzke.—p. 938.
Pneumococcal Urethritis: Case. R. Matzenauer.—p. 941.
*New Treatment of Peptic Ulcer. L. Jarno.—p. 944.
Symmetrical Pigmentations in Conjunctiva Bulbi. A. M. Rosenstein.—p. 947.
Treatment of Diabetes in Private Practice. V. Fischer.—p. 951.

Thrombosis of Portal Vein.—At the necropsy of a patient whose condition had been diagnosed as arteriosclerosis and gastric catarrh, Beitzke found a thrombosis of the superior mesenteric vein extending up through the portal vein and into its intrahepatic branches. Microscopic examination of these vessels showed a thickening of the periportal connective tissue and intense cellular infiltrations in the walls of the branches of the portal vein and in the surrounding tissue. In the main trunk of the portal vein the infiltration was less marked, but the wall contained many depressions in which there were fine fibrin networks.

New Treatment of Peptic Ulcer.—For the last three years Jarno has used a new treatment of peptic ulcer, based on two

facts: (1) the antiseptic power of bile; (2) the importance of cholesterol metabolism in peptic ulcer, as proved by the observation that the healing of peptic ulcer is always accompanied by an elevation of the blood cholesterol. The author explains the action of the old diet for ulcer patients, consisting of eggs, milk, cream and butter as having been due to its high cholesterol content. The practical application of his ulcer treatment consists in raising the cholesterol content of the blood either by means of a suitable diet or by means of pure cholesterol. To profit, in addition, from the antiseptic action of bile amino-acids, he also gives either pure beef bile (Fel tauri inspissati, each pill to contain 0.01 Gm.—one or two pills three times daily during or after meals), or a proprietary preparation of bile. In cases in which the patients cannot take the bile or in cases in which the cholesterol content of the serum cannot be raised, intramuscular injections of oily cholesterol, which are frequently effective, can be tried.

2: 973-1008 (June 30) 1928. Partial Index

Examination of Circulation in Hypotension. W. Kaiser.—p. 973.
*Etiology of Early Sclerosis of Brain. F. Oster.—p. 975.
Mechanics of Development. G. Wagner.—p. 977.
*Rheumatic Diseases. G. Rosenfeld.—p. 981.
Psychoanalysis in Organic Diseases. A. A. Friedländer.—p. 986.
Intravenous Injection of Acridine Dyes in Gonorrhea. L. Loewenstein and F. Spanier.—p. 988.

Etiology of Early Sclerosis of the Brain.—After necropsy on a man who died of sclerosis of the brain which began in his forty-sixth year, Oster found numerous organized cysts in the lower lobe of the left lung and in the regional pleura, which were the consequence of extensive infarctions that had followed attacks of pleuropneumonia in the patient's fourteenth and sixteenth years. From this observation Oster concludes that the patient had a constitutional weakness of the entire vascular system.

Rheumatic Diseases.—Berlin insurance statistics (1923-1925) show seven times as many cases of rheumatic disease as of tuberculosis, and three times as many days lost from work from rheumatic disease as from tuberculosis. More cases are found in parts of Germany near the sea than in inland districts.

Münchener medizinische Wochenschrift, Munich

75: 1063-1110 (June 22) 1928. Partial Index

Dysfunction of Skin. J. K. Mayr.—p. 1063.
Reich-Matti Operation for Double Harelip. H. Fründ.—p. 1067.
*Ultraviolet Ray Treatment of Whooping Cough. J. Becker.—p. 1070.
*Toxicity of Foods After Exposure to Ultraviolet Rays. P. Reyher and E. Walkhoff.—p. 1071.
Therapeutic Value of Synthetic Thyroxin. E. A. Burmeister.—p. 1073.
Ovarian Hormone Causing Estrum. M. Flesch.—p. 1074.
Determination of Bilirubin in Blood Serum. G. Haselhorst.—p. 1076.
Diagnosis of Poisoning. L. Schaetz.—p. 1083.
Care of Psychopaths. Adam.—p. 1088.

Ultraviolet Ray Treatment of Whooping Cough.—Becker's conclusions are based on observations made on two of his own children during attacks of whooping cough. In Germany there exists a popular belief that the gas in the vicinity of gas plants has a favorable action in this disease. The author, therefore, first placed both children in such a manner that they were protected from the rays of a quartz lamp by a dark cloth but had to inhale the gases resulting from the burning of the lamp. No effects on the number or distribution of the attacks was noted. The children were then irradiated every other day with the quartz lamp in the usual manner with two minute exposures on the anterior and posterior surfaces of the body. The length of the sittings was increased progressively by two minutes. The total number of the paroxysms of coughing and their intensity were not markedly modified, but it was found that they occurred much less frequently than formerly during the second half of the night. The value of this longer undisturbed night rest as a recuperation pause for the children and, incidentally, for the parents, should not be underestimated.

Toxic Action of Milk and Other Substances After Exposure to Action of Ultraviolet Rays.—For the past two years Reyher and Walkhoff have studied the action, on animals, of various substances after exposure to ultraviolet rays. A large number of mice and guinea-pigs were fed with the following irradiated substances, some in addition to normal, vitamin-rich food and some in addition to vitamin-free or vitamin-poor food in measured amounts: (1) openly irradiated raw cow's milk; (2) raw cow's milk irradiated with a new apparatus under the best possible exclusion of oxygen; (3) a proprietary preparation of irradiatel yolk of egg; (4) a proprietary preparation of milk protein. Examination of the organs of all of these animals revealed the following pathologic changes, the intensity of which varied in the different animals: The spleen showed signs of a marked destruction of blood. The kidneys presented the picture of a toxic nephrosis; in some of the animals the condition of the kidneys resembled that found in cases of subacute, mercuric chloride poisoning in man. The myocardium of many of the animals presented areas of degeneration with a tendency toward calcification. Other investigators have attributed similar findings to a hypervitaminosis. The authors, however, do not accept this explanation, but believe that the pathologic changes are the result of the action of some substance which is produced by the action of the ultraviolet rays and which, even in very small quantities, has a toxic effect, particularly on the blood and the kidneys. The authors think that this substance is probably a nitrite. A single qualitative test for nitrite in milk which before the irradiation had contained no nitrite was positive after the irradiation.

Wiener klinische Wochenschrift, Vienna

41: 869-904 (June 21) 1928. Partial Index

*Cancer in Styria. H. Haberer.—p. 869.
*Ultraviolet Ray Therapy of Angina Pectoris. E. Freund.—p. 873.
Plastic Correction of Results of Paralysis of Facial Nerve. H. Brunner.—p. 876.
Applicability of Abderhalden Reaction to Study of Endocrine Disturbances. G. Kaminer.—p. 881.
New Speech Disturbance (Dyslalia Stertens Labiodentalis). B. Silbiger.—p. 888.
Roentgen-Ray Diagnosis of Pulmonary Tuberculosis. H. von Hayek.—p. 891.

Statistical Study of Cancer in Styria.—Before going to Graz, Haberer had spent thirteen years in Innsbruck and had noted the rarity of cancer there. In Styria, on the contrary, malignant growths cause 6 per cent of all deaths. Of 637 cases of cancer observed and treated at this clinic 311 had to be classed as inoperable. He attributes this high percentage of inoperable cancer to the fact that the people of Styria distrust the regular physicians. The ones that did come to the hospital frequently admitted that they had visited twenty or more physicians. They also admitted a great weakness for visiting quacks. Not far from Graz is the famous "Wonder Doctor" who has a large following; in another part of Styria is a "Wonder Woman Doctor" who is also doing a thriving business. The high percentage of inoperable cancer in Styria today is directly attributable to these quacks and to the gullibility of the public.

Ultraviolet Ray Therapy of Angina Pectoris.—During the past two years Freund has been using the quartz lamp in treating cases of angina pectoris. In this treatment a great deal depends on the technic of administration. This is given in detail. In the first twenty-two cases treated, a regular control of the blood pressure was carried out. In seven cases the blood pressure dropped definitely, in ten cases it remained unchanged, and in one case it rose. Modifications of the blood pressure, however, seemed to have no effect on the improvement of the patient's condition. Even the etiology of the disease seemed inconsequential. Thus two cases of syphilitic aortitis in young individuals reacted very satisfactorily, as did also a case of contracted kidney with high blood pressure. The favorable psychic effect of this treatment on the patient should not be underestimated.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

93: 561-791 (June 29) 1928

Structure of Women's Clinics. W. Stoeckel.—p. 561.
New Leipzig Women's Clinic. H. Sellheim.—p. 601.
Tubal Insufflation and Hysterosalpingography. G. Haselhorst.—p. 614.
Bases of Hysterosalpingography. G. K. F. Schultze.—p. 634.
Value and Technic of Roentgenologic Pelvic Measurement. Von Schubert.—p. 658.
Importance of Local and General Treatment of Gonorrhea in the Woman for Spread to Adnexa. A. Reisner.—p. 676.
Safety of Transfusion of Citrated Blood. F. von Mikulicz-Radecki and E. Keeser.—p. 690.
Cyclic Changes in Cytologic Constituents of Vaginal Secretion in Human Beings. E. M. Moser.—p. 708.

Cornified Portio with "White Fields." H. Hinselmann.—p. 731.
*Pigmentation in Pregnancy. H. Grossmann and Schöneberg.—p. 734.
Cervical Placenta. F. Siegert.—p. 744.
*Rupture of Uterus from Credé's Maneuver. W. Cohen.—p. 764.

Pigmentation in Pregnancy.—Grossmann and Schöneberg feel justified in assuming that the pigmentation of pregnancy is caused by suprarenal activity. The pigmentation of pregnancy, however, stands in no relation to the various metabolic diseases with pigmentation. The varying intensity of the pigmentation rests on a basis of predisposition and has no recognizable clinical importance.

Rupture of Uterus from Credé's Maneuver.—Cohen's patient was a tripara, aged 35, who had had a febrile puerperium after her first labor and a premature delivery in the eighth month on the occasion of her second pregnancy. In the second half of the present pregnancy she had had pains in the left side of the abdomen and she evinced abnormal tenderness of the uterus during the third stage of labor. The placenta was situated at the tubal angle, as was the case in the six other cases in the literature. The site of the placenta appears to have been a predisposing factor in the rupture of the uterus that followed a repeated attempt to apply Credé's maneuver. On removal of the uterus at the laparotomy that was immediately performed, the wall at the site of the rupture was seen to be abnormally fragile and chronically inflamed.

Zeitschrift für Krebsforschung, Berlin

27: 1-194 (June 8) 1928. Partial Index

Results of Experimental Cancer Research. F. Blumenthal.—p. 26.
Radium Treatment of Cancer of Buccal Cavity. L. Halberstaedter. —p. 60.
Production of Flexner-Jobling Tumor by Filtrates. R. Erdmann.—p. 69.
Experiments in Immunization Against Bacillary Tumors. Reichert.—p. 83.
Active and Passive Immunization Against Hübner Strain. Becker.—p. 86.
*Diathermy Treatment of Malignant Tumors. A. Simons.—p. 90.
*Experiments in Immunization Against Malignant Tumors. H. Auler and K. Pelczar.—p. 104.
Rôle of Calcium in Cell Growth. A. Lasnitzki.—p. 115.
Fermentation and Growth. O. Rosenthal.—p. 125.
*Chemotherapy of Malignant Tumors. C. Lewin.—p. 132.
*Immunologic Processes in Malignant Tumors. C. Lewin.—p. 138.
Transmission of Rous Sarcoma. E. Fränkel.—p. 152.
Genesis and Culture of Blood Macrophages. H. Hirschfeld and E. Klee-Rawidowicz.—p. 167.

Diathermy Treatment of Malignant Tumors.—Some advantages of surgical diathermy of malignant tumors are that the experiments are almost wholly bloodless; the danger of recurrence and of inoculation metastasis is less than in treatment with the knife; the heat sterilizes the tissue to be destroyed; the deep action of the diathermy current enables certain inoperable tumors to be treated successfully; surgical shock is absent. Certain disadvantages are: it does not act electively on tumor tissue and there is greater danger of destruction of large vessels, nerves, etc., than when the knife is used; the danger of secondary hemorrhage is greater. It is not usually possible to join the edges of the wound by sutures immediately. Diathermy is especially useful in tumors in body cavities and in parenchymatous organs, also in tumors with a special tendency to metastasize and in disintegrated, secondarily infected cancers. Diathermocoagulation may be used in conjunction with the usual surgical procedures to sterilize the tissues and reduce the danger of metastasis. Diathermy treatment and radiotherapy supplement each other in an ideal manner. In combination they are especially effective in melanomas, nevus carcinomas and certain forms of sarcoma. Irradiation should follow diathermic destruction of malignant tumors.

Experiments in Immunization Against Malignant Tumors.—Normal and tumorous mice were treated with serum from an animal of another species (horse, rat), and before sensitiveness developed were inoculated with mice tumors. The influence of the horse serum treatment was seen in the host, in that the tumor, after an initial growth, became necrotic and retrogressed, and in the tumor, in that, when it was transplanted into either similarly treated or untreated mice, it at first grew vigorously, then retrogressed. Rats treated with mouse serum were inoculated with mouse tumors (carcinoma, sarcoma). When the inoculation took place soon after the first or second serum injection, i. e., before specific antibodies were present in large numbers, the tumors did not take. When there had been sufficient serum treatment and time was allowed for allergy to develop, the tumors took, but differed from the mother tumors in their structure. The result of inoculation of these tumors into normal rats was connective tissue granulomas with inclusions of blastomatous endothelial nests. These granulomas soon retrogressed. The results were similar when the tumor material was mixed with mouse serum before inoculation.

Chemotherapy of Malignant Tumors.—Lewin holds that the most effective application of chemotherapy to treatment of malignant tumors is by combining the more powerfully active substances with substances that have an elective affinity for tumor tissue. He has seen good results from cerium iodide. It has proved a valuable adjuvant to irradiation.

Immunologic Processes in Malignant Tumors.—Lewin produced a high grade of immunity in rats and mice by injecting various substances used in protein therapy (sodium nucleinate proved the best) before the tumor inoculation. Injected immediately after the inoculation, these substances were less effective. It was evident that the increase in leukocytes, particularly lymphocytes, was an important factor in the destruction of the inoculated tumor.

Zentralblatt für Gynäkologie, Leipzig

52: 1305-1368 (May 26) 1928

*Systematic Measurement of Amniotic Fluid in Various Stages of Pregnancy. F. A. Vonnegut.—p. 1306.
Support of Perineum. C. Seynsche.—p. 1311.
*Diagnosis and Therapy of Puerperal Tetanus. F. Rothstein.—p. 1314.
*Puerperal Infection by Gas Bacilli. A. Kohl.—p. 1324.
Fate of Premature Infants. T. Steinforth.—p. 1332.
Roentgen-Ray Diagnosis in Obstetrics. J. Koerner.—p. 1336.
Spontaneous Rupture of Uterus in Case of Retained Placenta. B. Schwoerer.—p. 1340.
Diagnosis of Anencephaly in Pregnancy. H. Nölle.—p. 1345.
Two Unusual Cases of Myoma. R. S. Hoffmann.—p. 1347.
*Manual Dilatation of Os Uteri in Abnormally Protracted Labor. M. Vrandečić.—p. 1349.

Systematic Measurement of Amniotic Fluid in Various Stages of Pregnancy.—Vonnegut measured carefully the amount of amniotic fluid in thirty-three cases of miscarriage in which the ovum was expelled intact. He found wide fluctuation in the amount in different months. In the first three months it greatly exceeded the weight of the fetus. At the end of normal pregnancy 500 cc. was not an unusual quantity. The average hydrogen ion concentration was represented by p_H 7.27.

Diagnosis and Therapy of Puerperal Tetanus.—Five cases of puerperal tetanus are reported by Rothstein. In one there had been an attempted criminal abortion, in two others there was the possibility that a similar attempt had been made; a fourth case followed a very difficult delivery, during which the midwife made frequent examinations; in the fifth case the mode of infection was obscure. The incubation period appeared to be from six to ten days. The characteristic symptoms of tetanus appeared suddenly and all cases except one terminated fatally in a very short time. There were, however, certain early symptoms in most of the cases. Among these were disturbed sleep, difficulty in swallowing, salivation, symptoms of tonsillitis, and a feeling as though the tongue were swollen. The involvement of the pharyngeal and diaphragmatic musculature was a prominent feature. Noise, vibration, the attempt to take nourishment, etc., caused attacks of intense dyspnea, even of cessation of breathing, with high-grade cyanosis. These attacks followed one another closely and began with girdle pain corresponding rather closely to the insertion of the diaphragm. Evidence of tetanus bacilli in the lochial discharge was not found by direct microscopic examination, in cultures, or animal experiments; this was explained as due to the fact that these bacilli do not long remain at the site of infection. As to prophylactic therapy, the author does not agree with Wohlgemuth that injections of tetanus antitoxin should be given in all cases of criminal abortion, but he does consider that this would be of value in certain cases. As to treatment when the disease has developed, Rothstein recommends immediate intravenous and intralumbar injections of tetanus antitoxin. Intracranial treatment as described by Fritsch is also advocated. Curettage of the uterus is advised, but not total extirpation. To relieve the spasmodic condition and apnea, ether anesthesia should be used together with injections of magnesium sulphite,

but care should be taken lest narcotics in too large doses cause paralysis of respiration. The trismus can often be relieved by injections of solution of procaine hydrochloride into the masseters. Plentiful nourishment by enemas is advised.

Puerperal Infection by Gas Bacilli.—Kohl reports two cases of gas bacillus infection following abortion, with fatal outcome. He points out that in cases of abortion, the presence of icterus, cyanosis, Burgundy-colored serum, and hematuria make a diagnosis of gas bacillus infection almost certain. For verification the presence of gas bacilli must be demonstrated. In both his cases the blood culture was negative, but in one gas bacilli were found in the urine. Differential diagnosis between infection of the interior of the uterus and gas gangrene of the myometrium is important, but is sometimes difficult, as in the author's first case, in which the gas bacilli were found to have invaded the musculature, although the classical symptom of gas crepitation was absent. In infection of the interior of the uterus, even in severe cases, the prognosis may be favorable, but when, as in the author's second case, there is almost complete anuria, the outcome is hopeless.

Manual Dilatation of Os Uteri in Abnormally Protracted Labor.—Vrandečić advocates manual dilatation of the os as a means of shortening abnormally long labor, sparing the strength of the mother for the expulsion period, and avoiding much dangerous interference. He does not believe that this method increases the danger of infection. Four cases are reported in which the protraction of delivery was due to rigidity of the os uteri and in which dilatation was successfully employed.

Bibliotek for Læger, Copenhagen

120: 427-479 (June) 1928

*Derivatives of Acridine in Treatment of Diabetes. O. J. Nielsen.—p. 427.

Derivatives of Acridine in Treatment of Diabetes.—On the theory that diabetes, at least in certain cases, is due to infectious disorders in the pancreas and elsewhere and might respond to chemotherapy, Nielsen in 1922 began treatment with derivatives of acridine, injected intravenously. In the twenty-seven cases discussed in detail in this preliminary report, acriflavine or another acridine derivative was used with results apparently far surpassing those following purely dietetic treatment. The effect is not immediate and is absolutely not like that of insulin, and the treatment is thus not indicated in acute insufficiency. Report is to follow on a series of investigations now in progress with other more ideal derivatives of acridine, together with a survey of the indications for acridine therapy.

Finska Läkaresällskapets Handlingar, Helsingfors

70: 311-403 (May) 1928

Casualties from Wounds and Sickness in Finland's War of Independence. H. von Bonsdorff.—p. 311.
Biochemical Viewpoints in Cancer Question. G. von Wendt.—p. 334.
Study of Pericardium; Its Folds and Sinus Transversus Pericardii. G. Hjelmman.—p. 360.
*Treatment of Ozena with Pilocarpine and Potassium Sulphocyanate. F. Leiri.—p. 372.

Treatment of Ozena with Pilocarpine and Potassium Sulphocyanate.—Leiri had good results in his three cases treated for a long period with a 1 per cent solution of pilocarpine in combination with irrigation with a solution of 1 per cent potassium sulphocyanate and 2 per cent potassium iodide. No toxic effect from the pilocarpine was noted. He intends in the future to use potassium chloride instead of potassium iodide to obviate possible iodism.

Hospitalstidende, Copenhagen

71: 421-444 (April 26) 1928

*Familial Congenital Macrosomia Adiposa. T. Christiansen.—p. 421.

Familial Congenital Macrosomia Adiposa.—Christiansen discusses the syndrome of endocrine disorder designated by this name, seen in the children of two sisters with menstrual anomalies. Of nine children born at term, seven had macrosomia, five dying within the first year. Necropsy revealed adenomas in the suprarenal cortex and accumulated eosinophils in the thymus. Congenital macrosomia is regarded as a suprarenal syndrome belonging to the obese type (Guthrie and Emery), due to a hyperepinephry (Apert), but distinguished by the absence of hirsuties and genital changes and in other ways from the suprarenal syndromes described in the literature to date. The syndrome is explained as an inherited lethal abnormality dependent on transforming heredity or heterophenia.

Norsk Magazin for Lægevidenskapen, Oslo

89: 545-632 (June) 1928

*Symmetrical Familial Lenticular Degeneration. T. Frølich and F. Harbitz.—p. 545.
Case of Gastric Syphilis. N. H. Brodersen.—p. 560.
Case of Idiocy in Connection with Exogenous Injury, with Histopathologic Changes in Brain. R. Vogt.—p. 568.
*Two Cases of Acute Abdominal Disease Due to Meckel's Diverticulum. E. Pettersen.—p. 571.
Case of Tuberculous Meningomyeloradiculitis with Yellow Spinal Fluid. E. Pettersen.—p. 574.
Acute Ulcer of Vulva (Lipschütz). N. Danbolt.—p. 579.
*Case of Fatal Sepsis Due to Bacterium Morgani I. T. Thjøtta.—p. 583.
Significance of Birth Trauma in Pathology of Child. L. Salomonsen.—p. 587.

Symmetrical Familial Lenticular Degeneration.—In Frølich and Harbitz' two cases in infant sisters, aged 8 months and 4 days, respectively, with death following cerebral symptoms, a symmetrical degenerative process in both lenticular nuclei and certain other parts of the brain was found. In the second case this process could be established only microscopically; in the first, it was considerably further developed. There was no evidence of exogenous cause. A third infant in the same family had died at 7 weeks from convulsions. No changes appeared in the liver. They regard these as cases of symmetrical progressive lenticular degeneration of familial nature belonging to the group of diseases called K. Wilson's disease or possibly to a somewhat different but closely related type. The lenticular degeneration in two cases of paralysis agitans and in two of insanity is also described. There are ten photomicrographs.

Two Cases of Acute Abdominal Disease Due to Meckel's Diverticulum.—Pettersen's cases were both in girls, aged 7½. Symptoms of acute appendicitis had been present for forty-eight and for six hours, respectively. In the first instance an invagination of the small intestine, 20 cm. long and easily reduced, was found 50 cm. from the ileocecal junction. The intussusception was due to a Meckel diverticulum 12 cm. long and of the thickness of a forefinger, with a papillomatous tumor of hazelnut size in the blind end. Resection was followed by recovery. In the second case there was abundant cloudy exudate in the peritoneal cavity. The conditions in the appendix did not explain the peritonitis and examination revealed a congested diverticulum of a thumb's thickness 40 cm. from the ileocecal valve. Recovery followed excision.

Case of Fatal Sepsis Due to Bacterium Morgani I.—Thjøtta's case, developing from an infection of the gallbladder with the so-called *Bacterium morgani I*, was fatal in twelve days. The microbe was isolated from the gallbladder and the blood and both strains were agglutinated in the patient's serum at 1:320. He regards *Bacterium morgani I* as an uncommon type of *Bacillus coli*, generally nonpathogenic, but capable under certain conditions of becoming pathogenic.

Ugeskrift for Læger, Copenhagen

90: 541-568 (June 14) 1928

Skin Lesions Resembling Syphilis. A. Kristjansen.—p. 541.
Method for Producing Increased Diffusion in Tissues. A. Kissmeyer.—p. 542.
Treatment with Mineral Salts. C. I. Baastrup.—p. 547.
Treatment of Deficient Milk Secretion with Mineral Salts. A. Tofte.—p. 549.
*Death from Anaphylaxis. K. H. Baagøe.—p. 550.
*Case of Infection with Bacillus Abortus. B. Lipschitz.—p. 550.
Cremonese's New Malaria Therapy. J. Christiansen.—p. 551.

Death from Anaphylaxis.—Baagøe reports an instance of collapse and death immediately following the intracutaneous injection of 0.10 cc. of egg albumin in a boy, aged 9, with asthma and idiosyncrasy for eggs.

Case of Infection with Bacillus Abortus.—The history of a typical case of infection with *Bacillus abortus* of Bang not diagnosed at the time is reported by Lipschitz. Three years after the occurrence, blood from the patient agglutinated *Bacillus abortus* at 1:50 and the complement binding reaction also was weakly positive.